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ELECTRICAL-MERCHANDISE AND SELLING ELECTRICITY

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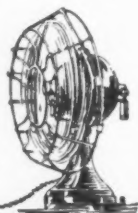
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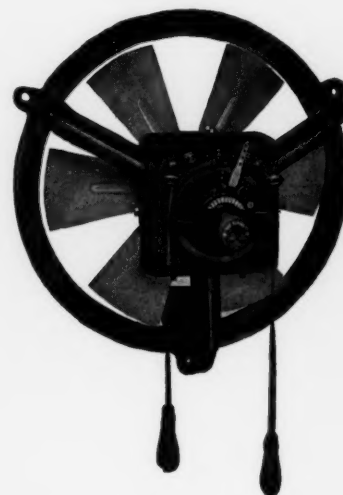


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ELECTRICAL MERCHANDISE and SELLING ELECTRICITY

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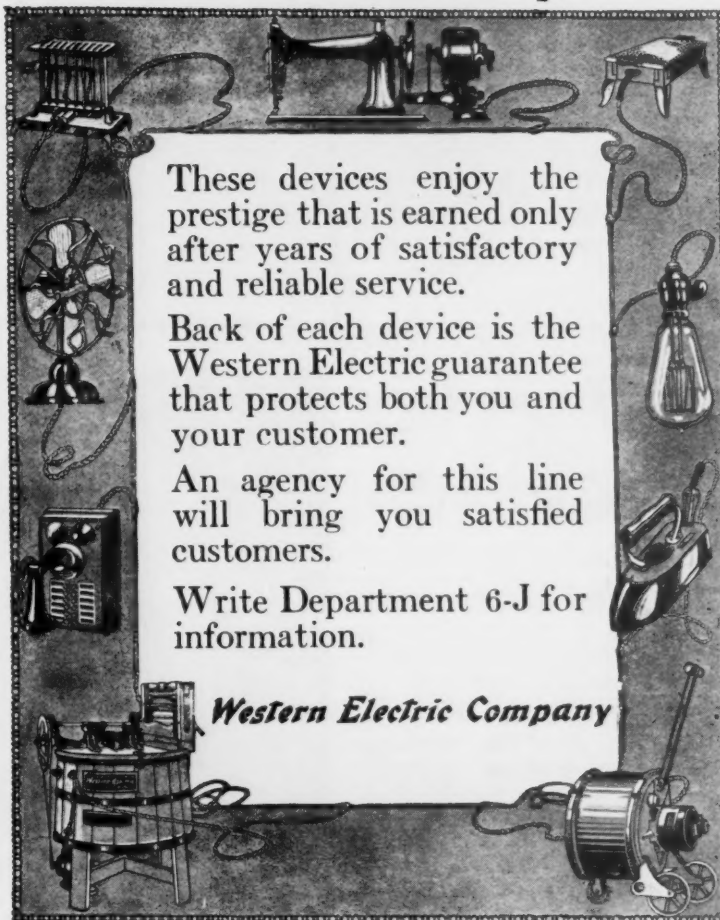
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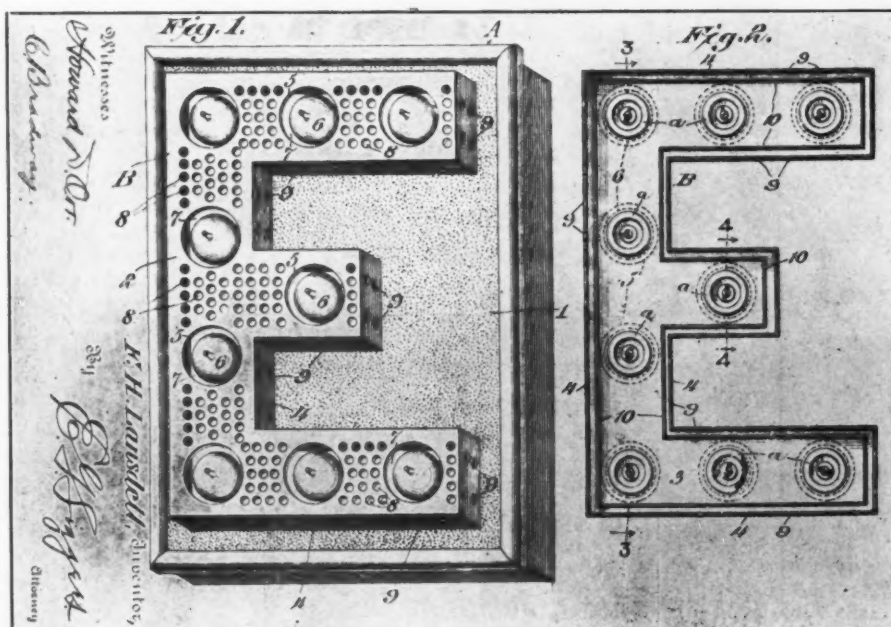
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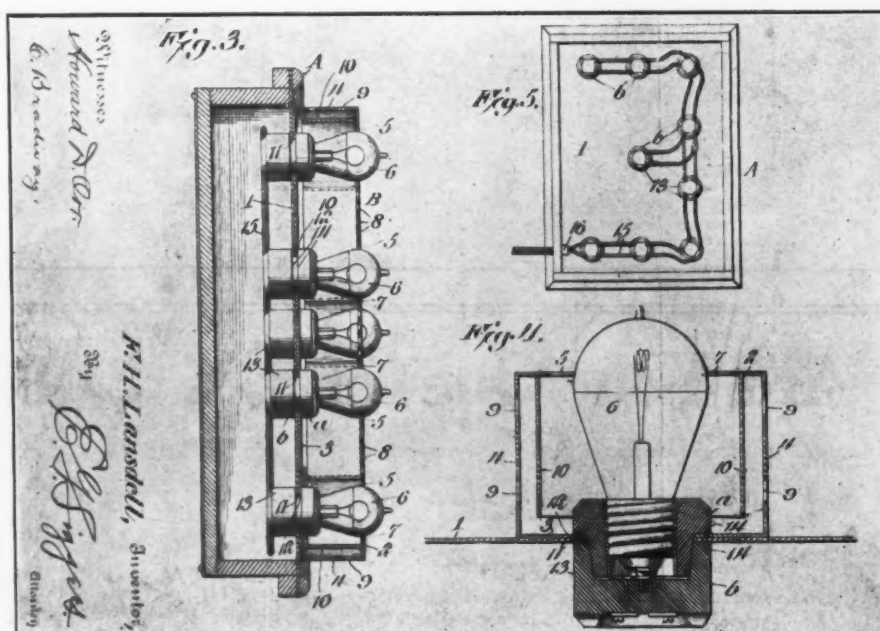
We have just purchased all rights for the manufacture and sale of the Lansdell Long-distance Luminous Letter. That shows what we think of it. We want you to see the reason why.

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Individuality

that Greenwood Signs are famous for. We are proud of it.



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Purchased An "L L L L" Electric Sign.

Greenwood Advertising Company
Knoxville, Tenn.

ELECTRICAL MERCHANDISE AND SELLING ELECTRICITY

Edited by FRANK B. RAE, Jr.

EARL E. WHITEHORNE, Managing Editor

The Thirty-Fifth Convention

Most Successful Meeting Marks End of the Gilchrist Administration—Far West Proves Its Right to National Meetings by Supplying Excellent Facilities

WHILE the Seattle Convention of the N. E. L. A. was not so largely attended as previous meetings farther east, it is doubtful whether any convention has been of greater benefit to the industry. Those who attended were, without doubt, the picked men of the member companies; their participation in the discussion insured its crispness and value. Those who stayed at home felt as never before the interest attached to the national meeting; they will read eagerly every report and will study with extra care every paper that finds its way into the trade press.

This issue of *Electrical Merchandise* carries abstracts of the more important and timely commercial papers. Others will be reproduced in August, so that before the real

committee reports. Three printed booklets of practical working data were furnished to Commercial Section members. The total amount of money reported as expended in Section work by the Secretary, Mr. Philip S. Dodd, is over \$25,000, of which only \$2,500 was received from Association sources, the balance being in form of contributions by manufacturers, central station companies, and others.

President Gilchrist's opening address,

co-operation, rate uniformity, the guarding of electrical securities against exploitation, and the cultivation of friendly and unprejudiced relationship with the public, were dwelt upon at length. These are all subjects of daily interest to the central station commercial man, and Mr. Gilchrist's views warrant careful study by every ambitious salesman.

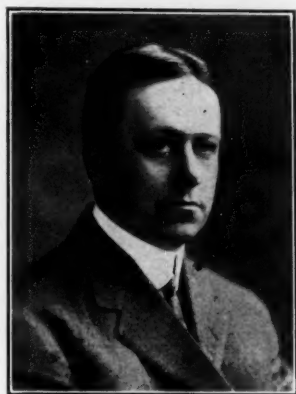
Almost 3,500 new names were added to the membership during the year, according to the report of Mr. H. H. Scott, chairman of the committee on Organization of the Industry. Of these, over 3,000 are individuals in the employ of lighting companies, indicating that the benefits of individual membership through the Company and Commercial Sections are being well recognized by the "men on the firing line."

Past President Freeman's address at the opening Commercial Session was note-



Joseph B. McCall, First Vice-President N. E. L. A.

while dealing in masterly fashion with vital central station problems, practically ignored technical subjects. Matters of Association organization and administration were his leading topics, but commercial



Frank M. Tait, President N. E. L. A.

lighting business of the next season begins our readers will have in concrete form every definite new-business suggestion made at Seattle.

The Commercial Section was undoubtedly the most prominent feature of the convention. The program offered at Commercial sessions was excellent; the reports and working data presented were practical, and the importance of the Section's work was acknowledged in a handsome way by the general officers of the Association. Four commercial sessions were held, the program including one address (by Mr. W. W. Freeman of Brooklyn), two papers and thirteen



W. W. Freeman, Treasurer N. E. L. A.

worthy. He recalled the fact that central station commercialism, as we understand it, is only ten years old, having been given serious consideration first at the convention of which Mr. Henry L. Doherty was president. Later he stated that "present methods of generation, transmission, and distribution are good enough," and that future growth of the industry depends most upon commercial work. In closing, Mr. Freeman hit upon a happy expression and one which will long be remembered when he said that the central station man who would attain success must build upon the seven peaks of brains, industry, knowledge, initiative,



H. H. Scott, Second Vice-President N. E. L. A.

enthusiasm, ingenuity, and perseverance.

The Public Policy meeting brought out several unusually interesting points. Although individual members of the public policy committee were among the most aggressive opponents of commission regulation when that plan of state control was first proposed, it is now officially conceded by the committee that such regulation best serves both the public and the utilities. The danger, if any, lies in unintelligent application of the idea. The committee's comments on industrial unrest are equally in line with modern ideas that the monopolistic utility is really a public servant. This unrest and agitation is a very serious matter and indicates the necessity of all lighting companies taking careful account of local feeling with view to eliminating criticism and friction. As contrasted with the arrogance of the old days, these expressions will appear wholly incomprehensible to the average city or state official. Officialdom has decided that utilities are inherently evil, so it is refreshing to note this calm and honest effort to counteract the deep-rooted feeling in the popular mind that electric lighting companies are a part of the monopolistic scheme. The committee properly insists that we are public servants, an attitude which has been advocated for years by commercial men who have felt that not only the growth of the industry but its stability depended upon the general acceptance by both public and utilities of the, to us, obvious fact that lighting companies



T. C. Martin, Permanent Secretary N. E. L. A.

are business ventures like grocery stores and depend for success upon the good will and purchasing power of their communities, not upon the terms of a franchise.

Municipal ownership also comes in for considerable attention by the Public Policy Committee. The idea of future work in combating municipal ownership lies, says the Committee, in securing accurate and up-to-date information on this subject. The plan is to maintain a bureau for the gathering and spreading of this information. Already this bureau publishes a small bulletin. In considering the report, it will occur to many that the danger in anti-municipal ownership propaganda lies in the "anti." The agitators who have put it forth have

stopped at no extreme to make a case; so it is to be feared that a policy of partisanship against municipal ownership will hardly serve the purpose at which the Association aims.

THE NEW OFFICERS OF THE N. E. L. A.

President, F. M. Tait Dayton, Ohio
First Vice-President, J. B. McCall Philadelphia, Pa.
Second Vice-President, H. H. Scott New York, N. Y.
Treasurer, W. W. Freeman Brooklyn, N. Y.
 To serve on the Executive Committee for three years: John A. Britton, San Francisco; C. E. Groesbeck, San Diego; Chas. A. Stone, Boston.
 To serve on the Executive Committee for one year: R. S. Orr, Pittsburgh.

NEW OFFICERS OF THE COMMERCIAL SECTION

Chairman, E. W. Lloyd Chicago, Ill.
Vice Chairman, T. I. Jones Brooklyn, N. Y.
Executive Committee: E. L. Callahan, Chicago; J. Robert Crouse, Cleveland; J. F. Becker, New York; Frank B. Rae, Jr., New York; F. H. Gale, Schenectady; M. C. Rypinski, New York; George Williams, New York; Philip S. Dodd, New York; J. C. McQuiston, East Pittsburgh; Stanley Walton, San Francisco; C. N. Littlefield, New York; H. J. Gille, Minneapolis; Douglass Burnett, Baltimore; W. E. Robertson,* Buffalo.

*Mr. Robertson represents the jobbing interests and a representative of the contracting interests will also be tendered a place, so that the committee represents in the fullest practicable measure a co-operative organization where all who are interested in the development of the industry may have a common meeting ground.

Most notable of the achievements of this Committee was the welfare work. This, we understand, was instituted originally by Mr. Arthur Williams, to whom great credit belongs. Several of the larger companies have organized schemes of welfare work along particularly practical lines. The Committee's report covers hygiene, industrial safety, fair wages and co-operative insurance.

Mr. Samuel Insull, who read the report, drew attention to the fact that the Committee, in the persons of its members, represents approximately one-half of the money invested in the electric lighting industry. A report which has the concurrence of such men should not be passed without the deepest study by everyone connected with the industry.

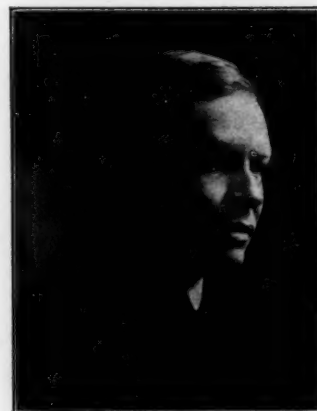
An important decision of the Convention was the determination to have the question box edited in the Association headquarters in New York. Although of great value to members, the Question Box has become unwieldy. It is today so large and the work it entails so arduous, that it is no longer fair to expect it to be handled as in the past by a central station man. A permanent editorial staff has been arranged for and it is the plan to answer questions when possible by direct correspondence and to further reduce the amount of space required in the bulletin by more accurate editing and better classification of subjects. The question box has not been used as much by commercial men as it should; the questions asked have too often not been specific enough to permit of their being answered in a helpful way. The new arrangement will enable the editors to follow up inquiries and get them in proper shape, and then to secure answers which will be of definite help.

The work of the Resuscitation Commission, as reported at Seattle, should be studied and advertised. This commission was established at the instance of Mr. W. D. Weaver and consists of members appointed

by the National Electric Light Association, The American Institute of Electrical Engineers, and the American Medical Association. The method advocated by the commission for resuscitating sufferers from shock is very simple, but the definite and authoritative instruction supplied will prove of incalculable value.

These points are simply the high lights of what all agree was one of the brainiest, most earnest, and hardest-working national conventions of many years. Not above 1,500 persons were registered altogether but what the gathering lacked in numbers it very evidently made up in effective work. The twenty sessions were all well attended. There was lacking the element which places a good time above the business at hand. Not that either good fellowship or adequate entertainment was lacking; the hospitality of the west was ample and insistent. But company representation from the east was naturally restricted to the leading men and these men, commingling with the aggressive, self-assured representatives of the Coast companies were inspired and enthused beyond their wont.

Some say that this was the first truly national gathering. In a sense it was. The east gave millions in money and years in time to send fitting representation; the west appreciated what was being done and met the situation as westerners alone know how to respond. The result was a meeting that makes the administration of Mr. Gilchrist go down in the history of the industry



John F. Gilchrist, Retiring President N. E. L. A.

as among the most successful in years, and presages a stronger, more closely-knit organization for incoming President Tait.

Providence Men Hold a Clambake.

The Electrical Fraternity of Providence, Rhode Island, held its tenth annual clambake at the Pomham Club on June 29, 1912. While the Providence Fraternity has not been given a great deal of outside publicity, it is one of the most effective electrical organizations in the country for promoting friendly spirit and in co-operatively developing the electrical industry, not only in Providence but throughout the state. The tenth annual clam bake included a luncheon, a ball game, field sports, and shore dinner.

How the "Good Service Supervisor" Pays His Way

The Story of the Good Service Department of the Denver Gas and Electric Light Company—What It Is and What It Does.

By ROY G. MUNROE, Supervisor Good Service, Denver, Colorado.

[It is a trite saying in the central station industry that it is better to develop more business from present consumers than to work for new customers. It is a self-evident truth, but as everybody knows, the central-station salesman who actually devotes more time and enthusiasm to speeding up the meters in his territory than to the securing of new contracts is a rare bird indeed. On this point there is a big difference today between common theory and common practice.

But they are doing it in Denver and proving the theory a practical one for every-day use anywhere. They have been doing it successfully—consistently and profitably—for several years, and in the following article Mr. Munroe, the Good Service Supervisor in charge of the work in Denver, tells the ins and outs of their system. What he has done in Denver, you can do in your town. Take this article to heart and apply it. If you want any further details or advice in organizing a Good Service Department of your own, we know that Mr. Munroe will be only too glad to have you call upon him for aid.—Editor.]



IN 1905, The Denver Gas & Electric Light Company assigned three of the members of its commercial department to the work of specializing upon what were known as "Low Consumption" lists. These

were lists prepared by the bookkeeping department, and contained the names of patrons whose consumption was very low, or whose bills were running much less than during the same months of the previous years. A number of customers upon these lists had paid gas bills of less than fifty cents a month for years back. Others were using fairly large amounts of gas or electricity, but were decreasing instead of increasing the quantity used year by year.

The Low Consumption Specialists, as they were then known, were instructed to call upon these consumers, and to endeavor to induce them to make more liberal use of the Company's commodities. The work, when viewed at first in the light of being a deliberate attempt to raise people's bills, did not appear very inviting. There was considerable doubt felt regarding the possibility of results being produced sufficient to warrant the making of this a permanent feature of the new-business development.

When once upon the ground, however, the men quickly found that the work was largely a matter of good service and that if the people were given good service, and shown that it was to their advantage to make more use of it, they would readily pay higher bills. There were many consumers who were not buying larger quantities of gas or electricity because they did not possess the necessary facilities. But there were still more who had not been taught to use to the best advantage that which they already had.

The "Low Consumption" men, therefore, found it necessary to direct their efforts (first) toward making perfect the service received by their consumers, (second) toward educating their people in the most advantageous methods of using the service, (third) in teaching them to appreciate and make liberal application of the good service, and (fourth) in making the service rendered as complete as possible.

At the end of three months' work along the above lines, comparisons were taken from the consumers' ledgers showing the amount of revenue produced by each consumer during the quarter of the year when called upon, and during the same three months of the previous year. It was discovered that an increase in consumption had been brought about, which while small per account was considered large enough in the aggregate to warrant a continuance of the work.

It was decided to assign one such special-

ist to the districts of each two representatives, and to extend the work to include all consumers whether on low consumption lists or not. As the work was wholly one of making the service received by the consumers good, understood, appreciated, and complete, the new department was called the "Good Service Department," and the term "Service Supervisor" was originated for its members. These appellations are not only very appropriate in view of the nature of the work, but they also assist greatly in the securing of an audience with many a consumer who would refuse the same appreciative attention to a professed salesman.

Although working as members of the commercial department, the service supervisors endeavor to impress upon consumers that their work is primarily the bettering of

the service given, and that only such orders are taken as may originate in making the service complete and satisfactory. The people have come to expect calls at regular intervals from the Company's district representatives and salesmen. They are encouraged to consider that all solicitation of new business is in charge of these men, and that the "service supervisors" calls are actuated by no desire to sell anything. As the service supervisors are required to make a showing on service given and revenue produced rather than upon appliances sold or orders taken, this attitude is easily maintained.

Each service supervisor now covers a field, embracing the territories of two salesmen. The business section of the city, however, is not included in this assignment for the reason that each district representative has such a small portion of the down-town section

THE DENVER GAS AND ELECTRIC LIGHT CO.
COMMERCIAL DEPARTMENT
GAS AND ELECTRIC BUILDING
15TH AND CHAMPA STREETS
DENVER, COLO.

R. G. MUNROE,
SUPERVISOR GOOD SERVICE

Mr. Harold H. Rollins,
477 South Prospect Street,
Denver, Colorado.

Dear Sir:—

During the next few weeks it is our intention to make a detailed inspection of our service in your district, to find out whether you are obtaining the best results from the appliances in use and if your entire equipment answers all the needs of your household.

Is your gas range adjusted properly?
Does your water heater give best results?
Is your kitchen equipment modern?
Do you get the proper amount and QUALITY OF LIGHT
WHERE YOU WANT IT?

Kindly think over these questions so that we can do what is needed when we call.

If we can be of service at once, we should be glad to have you notify us by means of the enclosed postal.

Very truly yours,

Enc.

Supervisor.

for all gas in excess of 3,300 cubic feet per month.

After working upon their lists for three months the members of the good service department turn them over to the bookkeepers and copy new lists for the next quarter of the year. There are usually about fifty of the accounts in a list representing consumers who have moved out during the three months or left the city temporarily, or upon whom for some reason it has been impossible to call. The bookkeepers make out a report showing the increase in consumption over the same quarter of the previous year which has occurred upon each three hundred accounts. Upon the amount of this increase is based the compensation of the service supervisors for the quarter.

All portions of the city of Denver have been gone over several times in this manner. In spite of this fact it seems to be possible to produce the same results upon a second or third working of the territory as upon the first. New consumers are constantly being added to the company's books and conditions even in the homes of the old consumers are changing from time to time.

As the business which the service supervisors are endeavoring to secure is almost wholly in increased sales from already set meters, with services and equipment already installed, it is therefore one of the most profitable fields which the company can work. In addition to the increased revenue produced the good service department does a work probably of almost equal value in the up-building and retaining of the public good will toward the company.

The Contractors' Convention in Denver

The advance plans of the annual convention of the National Electrical Contractors' Association to be held in Denver, Colo., on July 17th, 18th, and 19th promise an exceptionally interesting and helpful meeting. It is the first time the association has held its convention in the far west and apparently an effort has been made to give eastern members full value received for the cost of the trip in time and money.

At the open session on July 17th, to which all persons interested in the electrical business are invited, there will be an address by Governor John F. Shafroth on "The Resources of Colorado," also an address by M. B. Bisco, President of the Denver Chapter of the American Institute of Architects on "The Architect and the Contractor," and an address by A. F. Traver, Superintendent of the Denver Gas and Electric Co. on the "Relations between the Central Station and the Contractor."

On the afternoon of the same day there will be a sight-seeing trip by automobile, covering the entire city of Denver and some of the suburbs. In the evening at eight o'clock there will be a reception and dance in the Convention Hall of the Albany Hotel.

On Thursday, July 18th, at 8 p. m., there is the annual dinner of the organization, to which the ladies and representatives of other branches of the industry are invited, and this is followed by a vaudeville performance.

Friday, the 19th, is given up to an all-day trip over the Moffat Road by special train, which is sure to be attractive to everyone. Business sessions for members only will be held on the 17th at 2 p. m., and the 18th at 10 a. m. and 2 p. m., allowing ample time for the transaction of the work of the organization.

Electric Power Opportunity in Small Cement Works

The Description of Three Installations in Kankakee, Ill., With Figures on Load Conditions.

By GUY H. GROVE



PROSPERITY in the cement block and drain tile business is bringing a new power consumer in the field for central station service. Automatic machines for forming cement tile and blocks have only been built recently and these machines have reduced the cost of manufacturing to such an extent that hundreds of these plants have been started in the past year or two. While the smaller plants only require from 10 to 25 hp. for their operation, they are off-peak consumers, and as most of them are to be found in the small cities and towns they offer a desirable load.

The power required and the machines used are practically the same in all plants, so that a description of one is a fair example of all of them. The operation consists mainly of mixing the sand and cement with the proper amount of water to get the right

respect, except that it has a 3 hp. motor on the block machine and a 15 hp. on the tile machine which either drives the machine for making tile from 4 inches to 18 inches in diameter or a special machine for larger tiles from 18 inches to 48 inches in diameter.

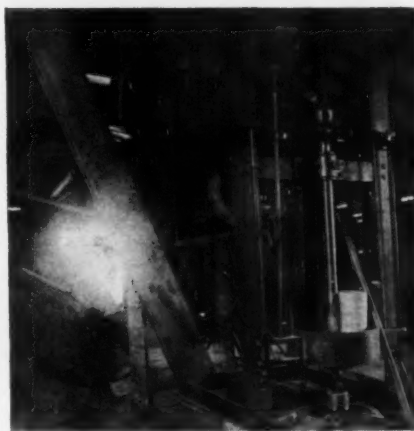
These tests were made on the tile machines only and all of them operated on the same principle. It will be noted that the horse power required for No. 1 was a little higher than that required for No. 2 and No. 3. This is due to the additional power required for driving the idle pulleys and line shaft. Tests showed a loss of from 1.7 to 2.1 horse power on friction load.

All the machines, excepting plant No. 2, operate elevators, and require the maximum horse power for machines of this class. The elevator requires from 1-2 to 1 horse power for its operation, depending on amount of concrete elevated to the machine. The pictures show tile machine, mixer, and cement block machine in plant No. 2.

The first operation in the process is the mixing of the sand, cement, and water to the proper proportions. This mixer is driven by a 5 horse-power motor mounted on the ceiling trusses. The mixer has a capacity of 60 yards per day and is used about one-fourth of the time, and is of a type found in a great many plants. Picture No. 1 shows the tile machine in plant No. 2 and is designed for making tile from 4 inches to 18 inches in diameter. As stated above, it is driven by a 10 horse-power motor.

The principle of these machines is very simple. A device called a "packer head" is attached to the lower end of a vertical rotating shaft. The tile mold which is made of heavy galvanized iron is placed in an upright position on a circular revolving platform, which holds five molds. The molds, which have an inside diameter of much larger than the outside diameter of the packer head, as it is desired to make the wall of the tile, is set directly below the revolving packer head. The packer head then automatically is lowered into the mold and as it reaches the bottom the freshly mixed concrete is thrown in. As the concrete starts to raise, the wings of the packer head distribute and force the material to the packing point; the packer then raises, packs, presses, and forces the material between itself and the casing, thus making a product thoroughly packed and uniform from end to end and superior in every way to the hand-packed tile. When the packer is out of the mold, the platform is revolved, another mold is put under it, and the operation is repeated. The mold is then taken off the tile which is ready for drying. Different sized molds and packer heads are used for the various sizes and lengths of tile.

The maximum horse power is required when the packer head starts to raising and packing the material. This maximum load is only on for an interval of from 10 to 30 seconds, depending on the size of tile being made, consequently a motor with a rating 20 to 30 per cent lower than the maximum horse power required on the largest tile is large enough. On two of these plants considerable trouble was experienced from a high speed motor with a small pulley, on account of the belting slipping at this point, due to the sudden maximum loads. In both cases the trouble was remedied by putting in a slower speed motor and using a large



No. 1. A tile machine driven by electric power Makes tile to 18 inches in diameter.

consistency and the forming of the different products by machines. Below is tabulated the results of tests made on three different plants and shows a fair value of power required for driving the machines used for making different size and lengths of tile. Information shows that the investment in such a plant is relatively small when compared with the profits realized from the sale of the products. These results are from actual tests with a watt-meter under actual working conditions.

Group 3

Size tile	Plant 1	Ind. Plant 2	Ind. Plant 3
4 inch	5.9 hp.	4.2 hp.	4.7 hp.
6 inch	6.6 hp.	4.8 hp.	5.4 hp.
8 inch	7.8 hp.	5.7 hp.	6.5 hp.
10 inch	9.1 hp.	7.1 hp.	7.2 hp.
12 inch	10.4 hp.	8.6 hp.	9.4 hp.
14 inch	12.7 hp.	10.2 hp.	11.2 hp.
16 inch	14.4 hp.	11.6 hp.	13.4 hp.
18 inch	16.5 hp.	13.4 hp.	15.2 hp.

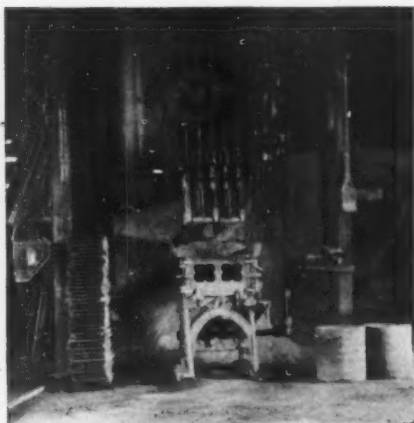
Plant No. 1 has a group drive consisting of a 15 hp. 3-phase motor driving a line shaft to which is belted a tile and block former and a mixer having a capacity of 80 yards of concrete per day.

Plant No. 2 is a tile machine driven by a 10 hp. 3-phase motor. The mixer and cement block machine are each driven by an individual 5 hp. 3-phase motor.

Plant No. 3 is similar to No. 2 in every

motor pulley giving more pulley surface.

For making larger sizes of tile, from 18 inches up, a special machine is used. It consists of a revolving table on which is placed a form made up of an outside and inside casing or jacket. The material is fed into the mould by an elevator and the machine is equipped with a tamper striking 300 forty-pound blows per minute, which plays up and down like a trip hammer on the material thus packing and pressing it firmly in the mold. When the mold is tamped full the outfit is removed from the machine, the inside and outside jacket removed from the tile, which is then ready for drying.



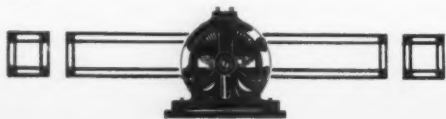
No. 2. A cement block machine. The tampers strike 250 blows per minute.

The power required to drive this type of machine is about 8 horse power, as shown from tests made on two machines. This is a constant load and does not vary with the sizes of tile as the operation is practically the same.

Picture 2 shows a cement block machine. In this machine the material is slowly fed into the mold and a number of tampers are started. These tampers each strike 250 thirty-pound blows per minute, making a very solid and substantial block. The capacity of this machine is 350 per day and varies but little with the different sizes and forms of blocks. The power required on this machine is between 4 and 5 horse power. A 5 horse-power motor drives the one in the picture.

While group drive is used in a great many of these plants, the advantages are greatly in favor of individual drive for several reasons. The tile former requires the greatest power and if a motor is installed just large enough to handle that machine the mixers or block machines cannot be operated when the larger sizes of tile are being made, which is a great handicap. In case it is desired to only turn out cement block the motor is only run at a fractional part of its load which greatly reduces its efficiency. If individual drive is used, each motor is operated at its highest efficiency under all operation conditions. In interviews with the owners of several of these plants, I find that they are greatly in favor of the individual drive in plants that operate mixers, tile and block machines on account of being able to work all or any machine independent of all others at any time.

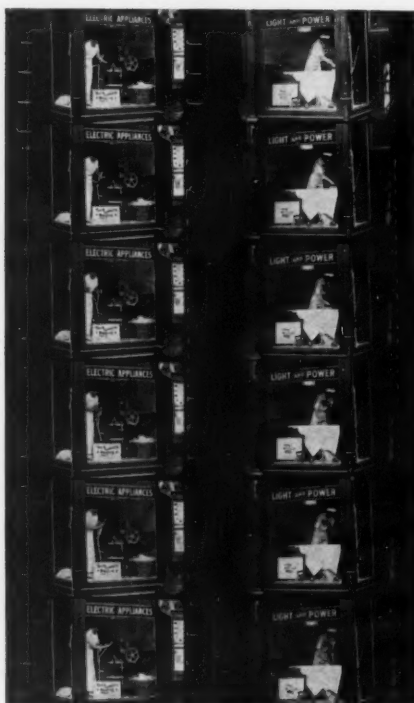
These plants operate on an average of 8 months of the year, and operate with an operating load factor of from 20 to 30 per cent.



Lawrence, Kansas, in a Whirl for the Moving Picture Man—and the Central Station

Mr. W. C. Duncan, commercial manager for the Lawrence (Kans.) Railway and Light Company, has taken toll from the moving picture man in a new way and submits the accompanying film reproductions as a suggestion to other central station men who are on the lookout for new ways to feature the domestic uses of electricity before the public. Mr. Duncan says:

"Working in co-operation with our local Commercial Club, we were recently instrumental in effecting the preparation of a series of moving picture films of the city of Lawrence and the neighboring points of interest. This film is called 'Seeing Lawrence,' and is 1,200 feet long, containing views of Kansas University, Haskell Institute, a U. S. Training School for Indians having 720 pupils representing 72 tribes from 28 states, the 'City Dads,' churches, public buildings, the dam across Kaw



River, and our principal business street on a busy day. And it was some busy as vanity was as prominent as ever.

"A call was issued by the president of the Commercial Club for all autos, vehicles, and pedestrians to be on the street at noon in the greatest possible action, and never since Quantrell's Raids was there such a crowd on our street. Most all the credit for pulling off this stunt was given the Commercial Club, but The Lawrence Railway and Light Company and a local picture man did all the work, and where we came in the photos show.

"We had two young ladies 'very attractive' engaged to operate electric appliances in the windows of our salesroom, and as you will note the electric iron and washing machine were busy. A large crowd gathered around our office while the pictures were being taken, to watch the man grind out 250 feet of 'An Interesting Subject, Electricity.' This picture will be used locally in three picture shows and we anticipate that fully 10,000 local people will see it. Then it will be put in a Motion Picture Film Exchange and sent to most every picture show in Kansas, securing good advertising for every local central station.

"We realize that other films of this kind have been produced but we have heard of none in any city of the size of Lawrence—

16,000. The effect of a feature of this kind is of course greater in a small town than in a big city, and its advertising value is obvious."

A Byllesby Lunch Club

There is a growing confidence in the value of luncheon clubs, not only as a semi-social bond between men of varied electrical interests in a community but for the individual members of one company where departmentization tends to interfere with the one-family spirit. It offers an opportunity for the rubbing of elbows at a time that is conducive to the discussion of business details without encroaching on either the time of the company or the after-hour leisure of the employee. Much inter-department friction "dies a-bornin'."

At a meeting of the department heads and other employees of H. M. Byllesby & Company, June 5th, it was decided to form a Byllesby Lunch Club to meet once a week at luncheon. The object of the club is to discuss matters pertaining to the work of the company and to better acquaint the employees with one another. A committee composed of F. H. Lane, J. W. Link, and M. A. Morrison was appointed to prepare the weekly programs, serving for a period of three months. H. V. Coffy was elected secretary.

The first regular meeting was held June 12th in the German Grille Room of the La Salle Hotel. Mr. R. J. Graf, secretary of the company, gave an interesting talk concerning the relations of the finance department to the other departments of the company.

Souvenirs in Bunches

As might be expected on a trip of such length there were a large number of souvenirs distributed on the trains to the Seattle Convention. Most important were the numerous appliances offered by manufacturers as prizes for various card parties and contests. These consisted of percolators. Among other items might be mentioned a book descriptive of the White River development by Stone & Webster, a book descriptive of the Vancouver and British Columbia properties, train directories and scenic guides by the Wagner Electric Manufacturing Company, aluminum drinking cups, playing cards, picture post cards, a "Little Journey" diary, bill-folds, flowers in profusion, drinks, candy, and cigars. The General Electric Company provided ozonizers for purifying the air of the smoking cars and the Westinghouse Company equipped two trains with moving picture machines and abundant films.

"National Quality"



**COLONIAL
MAZDA**

"Colonial Service"

**COLONIAL
ELECTRIC WORKS**

OF GENERAL ELECTRIC CO.

WARREN, OHIO

The SEATTLE CONVENTION NELA



Annual Harvest of Suggestion for the Central Station Salesman

Abstracts of the Commercial Papers

It is no little problem this year to present in abstract the many and voluminous reports and papers given before the annual convention of the National Electric Light Association. The work of the committees has been so thorough and specific in its analysis and presentation that there is of necessity much to read—a hoard of suggestive treasure for the man who sells the central station output through the process of creating new desires for the ever growing service. With the convention this year in the far northwestern city of Seattle, of necessity a great many men of the East and South were unable to attend and participate. In these reports we endeavor to carry the nubbin of the commercial sessions to them for immediate reading. The limit of available space compels more concentration than we would desire but the message and the inspiration are not weakened. Those papers that are crowded out this month will appear next month. Read these abstracts. Secure the full reports where they promise the solution of present problems and take immediate steps to apply these fruits of the Seattle Convention as the personal opportunity which it is.

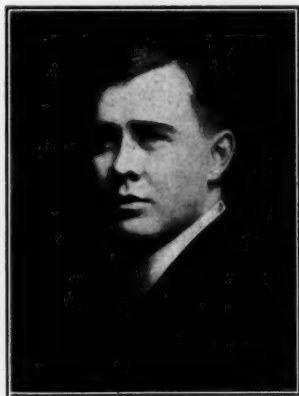
Report of Committee on Electric Advertising and Decorative Street Lighting

COMMITTEE: WILLIAM H. HODGE, Chairman; CLAUDE W. BENDER, B. W. MENDENHALL, A. LARNEY, HENRY SCHROEDER, C. L. ESHLEMAN, T. G. WHALING; EUGENE CREED and H. I. MARKHAM, ex-officio.

Your Committee on Electric Advertising and Decorative Street Lighting has the honor to submit its report herewith. The report is in two sections. Section I. refers to Ornamental Street Lighting and Section II. to Electric Advertising.

Section I.—Ornamental Street Lighting.

In conformity with the request of the Executive Committee we have prepared and published an illustrated book on the subject of ornamental street lighting. It is intended for distribution among the public for the purpose of arousing interest in special forms of street lighting which have esthetic and commercial functions in addition to utilitarian purposes. The publication of the book was financed by manufacturers producing ornamental street lighting material and supplies, who received proportionate quantities of the volume in exchange for their contributions.



W. H. Hodge, Chicago, Chairman of Committee.

The first edition consists of 10,000 copies and includes those required to supply single copies to section members and member companies. It is suggested that general distribution be made through the central bureau of the Commercial Section.

Out of 1,874 cities of 5,000 and greater population in the United States and Canada, not more than 275 now have ornamental street lighting systems, according to the best information which your committee can obtain. This number is at the same time proof of the demand for and wisdom of illumination of this nature, and of the opportunities still existing for similar installations in the large number of cities not so equipped at present.

It is the belief of your committee that it can do no more valuable work than to place at the disposal of member companies an informative volume to quicken public desire for street lighting of a truly ornamental and artistic character. This it has endeavored to accomplish.

We call attention to the neglected subject of the proper and artistic illumination of public buildings, squares, approaches, plazas, etc. We believe that a very considerable field for effective development here awaits attention.

While all concerned have been well pleased with the general results of modern ornamental street lighting installations—viz., curb posts symmetrically arranged, bearing from one to five lamps, we regret to say that there have been several cases of failure and dissatisfaction. The latter are attributable to the following causes:

- 1st—Division of responsibility for payment of operation and maintenance.
- 2nd—Lack of engineering skill and commercial foresight in designing installations.
- 3rd—Burdensome expense in proportion to the size and wealth of the community and taxes paid.

We recommend that wherever possible the central station company install and retain ownership of the ornamental lighting system, contracting with the municipal authorities

for an extended period on definite terms. Street lighting of any kind is essentially a public function and should be borne at public expense. The added mercantile value to a given street will find its expression in increased property values, higher taxes and higher rents. Those chiefly benefited finan-



A. Larney, St. Paul Member of Committee.

cially will bear their full share of cost. Installation by any other interest than the central station is or may become a logical step toward municipal ownership of all lighting facilities.

The design of an ornamental lighting system is not always controlled by the central station, but the latter should stop short of urging the expenditure of annual sums for operation which may become a source of irritation and criticism after the illumination has grown familiar. The efficient system for any city is one which is clearly an asset and never an onerous liability.

Your committee protests emphatically against the theory that ornamental street lighting as now generally practiced militates against electric sign, window lighting, building outlining, and other forms of expense-earning electric advertising. We hold that ornamental street lighting in business districts greatly increases the profitable and

harmless use of the street after nightfall, and thus contributes materially—sometimes vitally—to the earning power of the various mediums of electric advertising. We are satisfied that conditions as they exist support our contention.

We find that ornamental street lighting systems are potent in causing better paving, better street cleaning, and the general improvement of streets, curbs, sidewalks, and abutting buildings.

With the rapidly increasing number of "white way" installations, their advertising value to a municipality, heretofore considerable in a general way, will be derived principally from the following:

1—The attraction of shopping and amusement visitors from tributary towns and territory.

2—The favorable impression of the city given to the visiting stranger and to passengers on trains.

Both of these objects are valuable and important and worth paying for liberally by the entire community benefited.

From an ethical point ornamental street lighting systems are of value because they decrease the possibilities for successful commission of crime, and so transform the thoroughfare after dark that loafing and hoodlumism are impossible and the acts of the recklessly disposed of both sexes, of whatever age, are literally lighted out of evil into harmless gayety and amusement. The thoroughly lighted street cannot be made the theater of wrongdoing.

Appendix I. of Section I. contains such detailed information regarding modern ornamental street lighting as your committee has been able to secure.

During the past year a notable development has been made in ornamental street

lighting in the luminous flame arc lamp, burning in series in an upright position on the top of a specially designed single-light standard. The first installation of this character was made at New Haven, Conn. It is remarkable for intensity of illumination and for the manner in which it lights up the facades of buildings along the street. Appendix II. contains a more extended description.

Appendix III. consists of unabridged letters from commercial bodies of various cities giving opinions as to the value of ornamental street lighting systems, these letters being replies to inquiries made by your committee. They show a generally high appreciation of ornamental lighting installations.

The term "decorative street lighting" is a misnomer; the term "ornamental street lighting" is preferable. The former should be used to designate installations of a temporary nature; the latter to indicate permanent installations.

We find that the recognized manufacturers of ornamental street lighting posts, brackets, fixtures, glassware and lamps have kept in advance of the demands of the times and are entitled to the gratitude and hearty support of the central station industry. Their progressiveness should be rewarded by the premium of our co-operation toward standardization, the protection of designs which they have originated at great expense, or any other worthy movement which they may undertake.

Section II.—Electric Advertising

The rapid advance in electric advertising within the past few years and the present scope of this work has created conditions which your committee believes are deserving of the most careful consideration. There

are at present installed in the United States and Canada approximately 80,000 electric signs, containing about 8,000,000 electric lamps. With a view to stimulating interest in questions of vital importance concerning the development and regulation of electric advertising, we beg to offer the following suggestions:

The responsibility of the central station for esthetic results, the satisfaction of the advertiser and the increase in display lighting are incontrovertible. Any lack of interest, or unwillingness to assume a proper part of this burden, permits unregulated development and invites restrictions which react and retard legitimate growth.

The installation of unsightly displays or poor mechanical effects creates unfavorable comment and criticism, which eventually leads to unreasonable restrictions.

Care and intelligent judgment should be exercised in the selection and recommendation of displays to the advertisers. The most pertinent satisfactory type, design, size, color combination, flasher effects, etc., should be selected and advocated. In this manner a result mutually beneficial to advertiser, company and city will be accomplished. At the same time the industry will be protected against unreasonable sign ordinances.

All installations should be made with a view to anticipating future municipal requirements by furnishing displays of a high standard, good appearance, and proper illumination, thus offsetting unfavorable developments.

Central stations, sign manufacturers and affiliated interests should for their common good foster and encourage the investigation and compilation of data on electrical advertising. Your committee believes that within a few years the present designs and cruder installations will be replaced by more distinctive and artistic creations, and any data on present displays will prove invaluable.

One of the most important features of electrical advertising is the value of motion. We believe that the increased efficiency and attractiveness of animated designs greatly exceed the difficulty and expense of caring for the necessary mechanical equipment.

No other form of outdoor advertising is at present so free from criticism and antagonism from esthetic reform organizations as electric advertising. On civic grounds electric advertising is generally recognized as highly desirable. It is the one advertising medium which at the same time serves a distinct commercial service and renders a distinct public service in lighting the thoroughfare. The merchant and manufacturer—in fact all who offer commodities or service through this form of advertising—may erect displays indicating their presence, title, wares and functions and while deriving profit therefrom perform an act of appreciated public value.

All electric signs in so far as possible should be beautiful both day and night. Too frequently the daylight aspects are overlooked. As the average use of a display is eighteen hours per day, two-thirds of which is daylight and one-third artificial light, it is essential that a proper design and combination of pleasing colors be adopted.

We believe that electric advertising in original creations embodying novel mechanical motion effects is the only medium of publicity which is read and reread without tiring the reader.

The central station derives a direct benefit, second only to that of the advertiser, in electrical advertising. In order to further this development central stations should be pioneers in this respect, showing proper

Second-Hand Apparatus for Sale

At Low Prices

- | | |
|--|---|
| <p>1 25 H. P. 110 volt D. C. 200 Amp. Akron motor, Type SE. No. 2451, 750 R. P. M., with iron pulley 15 inches Dia., 9 1-2 inches face, 2 inches bore. Base plate and 25 H. P. Cutler Hammer 100-125 volt D. C. Starting Rheostat.</p> <p>1 5 H. P. 110 volt D. C. 40 Amp. Type S. B. Akron motor, 950 R. P. M., with base plate, and no pulley, No. 2774.</p> <p>1 10 H. P. Gardner Elevator motor, compound wound, 110 volt, D. C., 750 R. P. M. with iron pulley 12 inch Dia., 7 inch face, 1 3-8 inch bore, with 1 10 H. P. 110-125 volt Cutler Hammer elevator automatic controller and reversing device, No. 60836-A.</p> <p>1 40 H. P. 110 volt, Type SG. Akron motor, No. 2452, 750 R. P. M., with base plate, and 1 40 H. P. 110-125 volt, D. C. Cutler Hammer starting rheostat, Serial No. 130764.</p> <p>1 85 K. W. 125 volt D. C. Akron generator, Style No. O. P. 2456, with iron pulley 22 1-2 inch Dia., 20 3-4 inch face, 3 1-4 inch bore, and two slide rails, with the following switchboard apparatus:</p> <p>1 Switchboard panel for equipment, 1 Slate panel 18 inches long, 18 inches by 6 inches by 2 inches.</p> <p>1 15 K. W. Shunt Rheostat.</p> <p>1 1 to 1,000 Amp. Weston Ammeter and Shunt.</p> <p>1 G. E. Circuit Breaker, 800 Amp. 250 volt.</p> <p>1 Knife Switch, 3-Pole, S. T. 800 Amp. 250 volt.</p> <p>1 35 K. W. 125 volt, D. C. Akron generator, No. 2454, with iron pulley 12 inch Dia., 12 inch face, 2 1-2 inch bore, and base plate, with the following switchboard:</p> <p>1 Ward Leonard switchboard panel with one circuit breaker.</p> | <p>1 3-pole S. T. knife switch, 1-2 pole D. T. knife switch.</p> <p>1 field rheostat and one iron frame.</p> <p>1 Weston ammeter and shunt, 400 Amp. Dimensions of the above frame: 6 feet, 2 1-2 inches long, 17 3-4 inches wide, 2 inches thick.</p> <p>1 Triumph 5 H. P. 500 volt, 7.5 Amp. D. C. Motor, 1,750 R. P. M., No. 4539, with slide rails, and 1 500 volt, D. C. 3 1-2 to 5 H. P. West. Starter, Style No. 11811-B. No pulley.</p> <p>1 35 K. W. West. 125 volt, 280 Amp. 290 R. P. M. Generator, D. C., Serial No. 501999, direct connected to West. Gas engine No. 915.</p> <p>1 35 K. W. West. 125 volt, 240 Amp. 850 R. P. M. Generator, D. C., with cast iron pulley 20 inch Dia., 16 inch face.</p> <p>3 Field Rheostats for the above generators.</p> <p>1 Weston voltmeter, 0 to 150 volts, No. 11682.</p> <p>1 Weston ammeter, 0 to 350 Amp., No. 28318.</p> <p>2 Weston ammeters, 0 to 300 Amp., No. 18009.</p> <p>3 Switchboards, Equip. Co. Cir. Breakers, 200 Amp. 250 volt. No. 549, 551, 6650.</p> <p>1 West. D. C. Motor, No. 101, Type S. open, 45 H. P. 110 volt, 875 R. P. M., 840 Amp. Serial No. 884775.</p> <p>1 2 Panel Switchboard, equipped with the following:</p> <p>11 300 Amp. S. P. S. T. Switches.</p> <p>3 300 Amp. I. T. E. Circuit Breakers.</p> <p>4 350 Amp. S. P. S. T. Switches.</p> <p>3 500 Amp. "Queen & Co." Ammeters.</p> <p>1 50 to 130 Amp. Hartford Braun Voltmeter.</p> <p>300 Adams-Bagnall A. C. Arc Lamps, 110 volt, Multiple.</p> |
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The Allegheny County Light Company, Pittsburgh, Pa.

evidence of their own faith in its merits by installing a display or displays of sufficient proportions and novelty to establish the highest standard in the community. It is not consistent to solicit actively this class of business while the principal electrical interest of the city is lacking in evidence of its own confidence.

Where city ordinances are pending regulating electric advertising, the central station should urge the city authorities in every instance not only to enact liberal ordinances, but to make special provision for elaborate and extensive electrical effects for temporary service in connection with public celebrations, thus avoiding the need of circumventing an ordinance to meet public demands under unusual conditions.

Our replies regarding the performance of Mazda and tungsten lamps have been few, and central stations as a whole have not had them in service long enough to compile the desired data. We have every reason to believe, however, that these lamps are very efficient and satisfactory. No adverse reports have been received.

We find that the question of manufacturing interchangeable electric displays, to be shipped in knock-down form and installed on permanent angle-iron roof frames, is receiving much consideration but has not sufficiently advanced to enable the committee to make an intelligent report, which should include the various local regulations that would affect development of this kind.

(Then follows in the report an appendix, presenting detailed data covering the installation and operation of ornamental street lighting systems in 50 cities in the United States and Canada, with letters received from 16 Commercial Associations testifying as to their influence for civic progress and betterment.)

Getting Together With Uncle Sam

The Power Transmission Section (which has been re-named Hydro-Electric and Transmission Section) scored heavily when it secured not only a paper describing the work carried on by the Government in connection with hydro development but also staged an address by former Secretary of the Interior R. A. Ballinger.

Mr. Doherty, Chairman of the Section, did not mince words either in his opening address or in the discussion, in calling into question the conservation policy of the past two administrations. It was his belief that this policy is founded upon inaccurate information and he believed that Government work in this direction should be improved. Both Mr. Doherty and Mr. Ballinger took occasion to pay their respects to muck-rakers, misinformed officials, and others whose prejudiced appeals to popular but impractical conservation theories are withholding vast amounts of undeveloped power from any useful purpose.

Bankers and Brokers Welcome

A constitutional amendment was adopted at the Seattle convention whereby bankers and brokers are eligible to Class D membership in the National Electric Light Association. Mr. Doherty is suspected of being the father of this amendment, which will have the effect both of drawing into membership a considerable number of those interested in electric light and power securities and of giving such members an abundance of practical knowledge of the real status of the industry. No industry was ever hurt by having financial men familiar with its scope and possibilities for development.

Report of Committee on Cost of Commercial Department Work

COMMITTEE: E. L. CALLAHAN, Chairman; JOHN G. LEARNED, Secretary; H. T. SANDS, J. E. DAVIDSON, L. T. PHILO, H. C. EDDY, H. N. MCCONNELL.

We have construed that the purpose of this committee is to collect data from member companies to show the cost of maintaining their commercial department or sales force in various sections, and to draw some



E. L. Callahan, Chicago, Chairman of Committee.

general conclusions from reports received. It was decided that the various central stations might be classified as follows:

Class A—Companies serving population of 25,000 and less.

Class B—Companies serving population of 25,000 to 100,000.

Class C—Companies serving population of 100,000 to 250,000.

Class D—Companies serving population of 250,000 and over.

A circular letter together with a cost sheet form was sent to central stations in various sections of the country. Only 26 replies to 350 letters of inquiry contained adequate information. Forty additional replies contained insufficient data to be of service in this report. It is assumed that the information asked for was not available in more than one company out of ten. Consequently the committee feels that it is not taking a liberty when it desires to point out and emphasize the importance of the value of keeping a complete record of commercial department costs.

The tabulation of cost data from central stations in cities of medium size is of more general assistance than the information which could be obtained from member companies in the larger cities, because the smaller companies are often unable to determine to what extent they may proceed in making expenditures for the securing of new business and the retaining of existing business, and therefore may not be fully developing their fields of endeavor or entering new fields.

It is very evident, judging from the number of replies to queries sent to central station companies in cities of 25,000 population and less that separate and complete records are not kept of expenses incurred for the promotion of new business or commercial department work. In the opinion of the committee the form accompanying its circular letter was so arranged that it would have taken but a few minutes of the bookkeeper's time in the smaller central station company offices to have furnished the costs requested if it had been their custom to keep such costs itemized and separate from ordinary operating expenses.

Replies made to requests from these com-

The United Electric Light and Power Co.

extends you a cordial invitation to make its exhibit your headquarters while at

THE 1912
NEW YORK ELECTRICAL EXPOSITION
GRAND CENTRAL PALACE, OCT. 9th to 19th

This Company's exhibit will be a most attractive display of the recent achievements of electricity in the realms of light, heat and power. It will occupy SPACES 64 to 71, inclusive.

Each year this Exposition has grown in interest and value to everyone interested in the electrical industry, and it is already assured that the 1912 Exposition will surpass all its predecessors.

The United Electric Light & Power Company

1170 Broadway

Telephone 4070 Mad. Sq.

BRANCH OFFICE AND SHOWROOM

138 Hamilton Place

Telephone 4000 Audubon

COST OF COMMERCIAL DEPARTMENT WORK

POPULATION.....

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1—Number of Salesmen													
2—Salaries of Salesmen													
3—Commissions to Salesmen													
4—Salaries of Appliance Salesmen													
5—Salaries of Appliance Demonstrators													
6—Petty Expenses—Salesmen and Demonstrators													
7—Commercial Dept. Office Expenses:													
a—Salaries of Department Heads													
b—Salaries of Commercial and Illuminating Engineers													
c—Salaries: Clerks, Stenographers													
d—Rent, Heat, Light													
e—Postage, Stationery, Telegraph and Telephone													
f—Periodicals, Association Dues, Traveling Expenses of Department Heads and Engineers													
8—Auto and Livery Expenses													
9—Advertising for New Business													
10—Advertising Dept. Expenses:													
a—Salary Expense													
b—All Other Expenses													
11—Special New Business Expenses:													
a—Free Wiring, Fixtures and Appliances													
b—Loss on Motor Exchange, etc.													
c—Loss on Purchase of Isolated Plants, etc.													
12—Miscellaneous													
TOTAL COST													
Number of Contracts—Lighting													
Number of Contracts—Power													
Number of Contracts—Total													
K.W. Connected—Lighting													
K.W. Connected—Heating and Cooking Appliances													
K.W. Connected—Power													
K.W. Connected—Total													
Cost per Contract—Lighting													
Cost per Contract—Power													
Total Cost per Contract													
Cost per K.W.—Lighting													
Cost per K.W.—Heating and Cooking Appliances													
Cost per K.W.—Power													
Total Cost per K.W. Connected													
GROSS REVENUE													
Gross Revenue Increase													
Per Cent. Total Commercial Cost to Gross													
Gross Increase per \$1.00 of Commercial Cost													

reason. The variety of systems now in use is probably due to the fact that each company was of necessity compelled to create a system to best serve its own purpose. It would seem, however, that when a uniform system of accounting such as the National Electric Light Association System comes into its own, and is adopted universally, the natural sequence will be to create a standard system of keeping cost of Commercial Department work.

The Committee has drafted a form for keeping a consecutive record of monthly reports, applicable, in their opinion, to central station companies of all sizes and situations. There are items of expense noted on this form which may not be applicable to the smaller companies or which may well be combined with other items. The committee submits this form for your approval and adoption at your pleasure in the hope that it will be at least a basis for the establishment of a uniform method of recording commercial department costs among all member companies. This form is in conformity with the National Electric Light Association Uniform System of Accounting, and it seems to the committee that there is much advantage in having figures available which will show accurately the relations of the total commercial department expense for any given period to the company's increase in gross income for the same period. Such figures will serve as a good basis for increased progress or retrenchment, as may best suit the company's interests. However apparently efficient the commercial department may be, it is always advisable to check up results and compare them with the cost.

The tabulated returns to inquiries sent out are given in what follows.

(Continued on page 317)

panies usually stated that the size of their business did not warrant keeping commercial costs separated from operating accounts or that their method of accounting did not lend itself to the segregation of commercial costs sufficiently to make a comprehensive reply, but that they thought the forms were excellent for showing at the end of each month the segregated cost of the commercial department and its relations to the gross income and increase in gross income, and that they intended to follow this form for the year 1912.

The replies received from central stations in cities of from 25,000 to 100,000 showed a



H. T. Sands, Boston, Member of Committee.

great diversity of opinion as to the manner of keeping a record of costs, and it appears to the committee that there is need for a more uniform system of keeping costs for the purpose of comparison if for no other

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The Essential Planning of a Store—What It Means

How the Electrical Merchant Should Arrange His Store and Make This Plan an Active Factor in His Success.

By D. B. BUGG

[To the average layman a store is just a store. We expect to find counters and shelves and goods on display and there they are, but the sales plan that lies behind the arrangement and operation of that store, the subtle influence that impels the sale in many cases is indiscernible and unthought of. The man who operates or is planning an Electric Store will do well to look into this physical side of store-keeping. It is an active factor in the retail merchant's success. In his two preceding articles Mr. Bugg has pointed out the weaknesses in the "underdone" and the "overdone" stores; this month he shows how the Electric Store *should* be arranged and operated, and why. Study this floor plan and compare this layout with the appearance of your own store. If it differs, which plan do you think offers the strongest suggestive influence for sales and profits?

Mr. Bugg is a long-time student of merchandising methods and a recognized expert on store equipment. He knows whereof he speaks. In his next article, which will conclude the series, the vital subject of price and profit will be treated. How much should it cost the electrical merchant to sell goods? How should he distribute his overhead? How should his stock be depreciated? What per cent of profit should a healthy business pay? Mr. Bugg will answer these questions in the August issue of *Electrical Merchandise*.—Editor.]



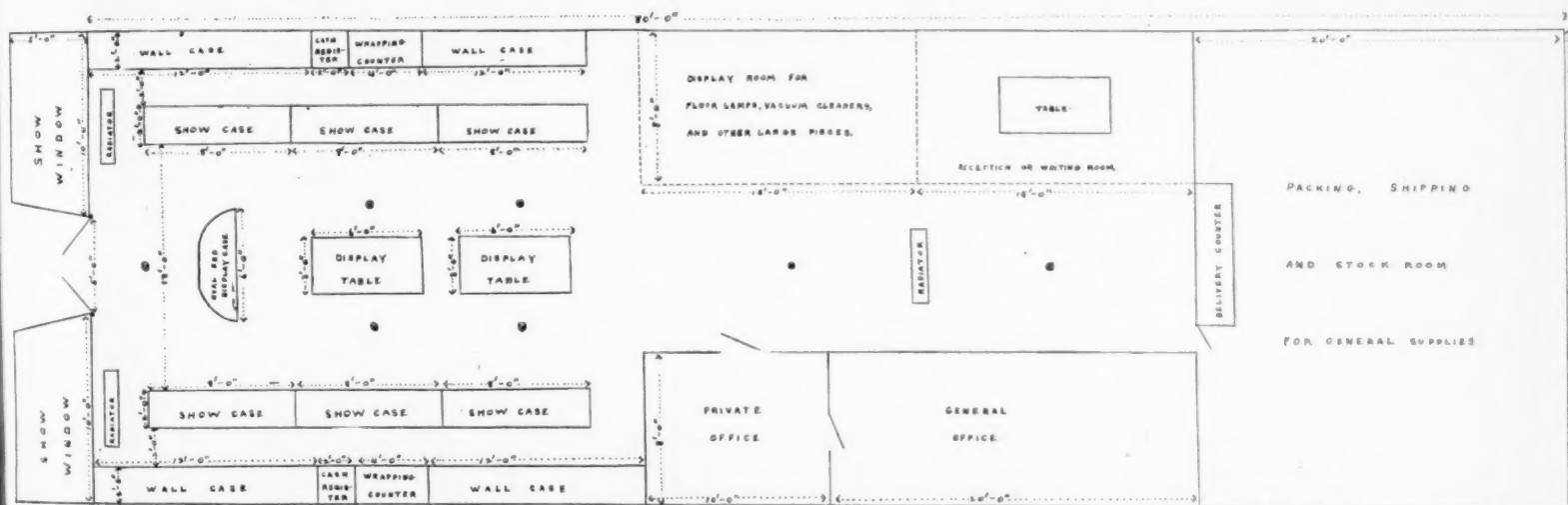
THE two preceding articles on this subject have contrasted the two extreme types of retail store where the public now goes to buy electric current-consuming appliances and accessories: the disorderly, unkempt shop that so often marks the headquarters of the electrical contractor, and the over-dressed palace of art that the electric light companies in some of our larger cities have established as their display rooms. The former is virtually no store at all, for no real effort is made to attract, serve, and please the public; the latter is actually not designed for a retail establishment, but

A survey of the field will show that more customers for electrical merchandise are to be obtained by catering to the average class of American citizens than to any other group of people. The trade of the very wealthy cannot be depended upon for profits. True it is that better prices can be obtained from wealthy customers but there is little assurance of continuous patronage from this class. The average wage-earner or minor clerk has very little money to invest in anything but the bare necessities of life. It therefore behooves the electrical merchant to look for his customers in what we shall term the average class of citizens.

Consequently, every effort should be made with a view of attracting to the store

In order that a good store arrangement may be more clearly defined, a floor plan is shown with this article. It is by no means the only arrangement possible and can be modified in a number of ways to meet varying conditions and still be perfectly satisfactory. It is simply a suggestion. But the principles embodied should be studied most carefully and most of them should be strictly observed. This store is 25 feet wide by 80 feet long.

The part of the store which should receive first thought and care is the display windows. If properly arranged and taken care of the windows will be the biggest factor in securing trade. They are the store's best advertisement. The floor of the windows should



This is Mr. Bugg's recommendation for the arrangement of the practical and efficient Electric Store. This plan is an adaptation of the proven "best way" as it has been worked out by evolution in the general merchandising field. It is the arrangement that saves the most steps, that offers the greatest convenience to the customer and therefore makes the most sales. The dash line enclosing the Display Room and the Reception Room indicates a brass or wood railing and not a high partition. The partitions around the office can be simply above head-height or to the ceiling. The size of these three departments will depend on the local circumstances. The position of lighting outlets will be governed by the system of illumination employed. But the basic plan behind this layout is right and should not be radically departed from, or the sales will suffer.

rather is provided as a beautiful and luxurious display. The purpose of this, the third article of the series, is to briefly outline the arrangement and describe the management of a store operated on a business-like basis, as the term is now understood.

The object of any person or firm engaging in a mercantile operation is the making of money. To make money it is necessary to procure articles for which there is a demand or for which a demand can be created and sell them for a price which will not only cover the bare cost of the articles and the cost of selling them, but will net in addition a reasonable profit. In order to successfully carry on a business, it is essential that customers should be attracted to the store—the more customers, the more sales and the more money made.

every possible customer in this class. The location chosen should be in that part of town where the possible customers most often pass. The exterior should be arranged to attract and not repel. The interior arrangement should be studied with a view of pleasing those whose trade is desired. The service in the store should be managed with the purpose of giving satisfaction to everyone. The small buyer should be treated with the same courtesy as the diamond-bedecked "spender."

These are not radical innovations in most merchandise lines but have come to be regarded as the usual procedure by the largest and most successful merchandise establishments in the country. A breach of the observance of any of these principles is a rarity.

be about 24 inches above the sidewalk and the windows should be at least five feet deep. At the rear of the windows there should be a solid background at least five feet high, and from this height to the ceiling clear glass is preferable. This will allow considerable daylight to penetrate into the store and will at the same time prevent the articles in the window from getting dusty and unsightly.

The color of the window floor and background should be a matter of careful study and as a large proportion of electrical appliances are finished in bright metals, a dark color background will show them off to the best advantage. Dark parquet makes a very desirable flooring but in addition to the wood floor in the windows, it is advisable to have several pieces of velvet of various

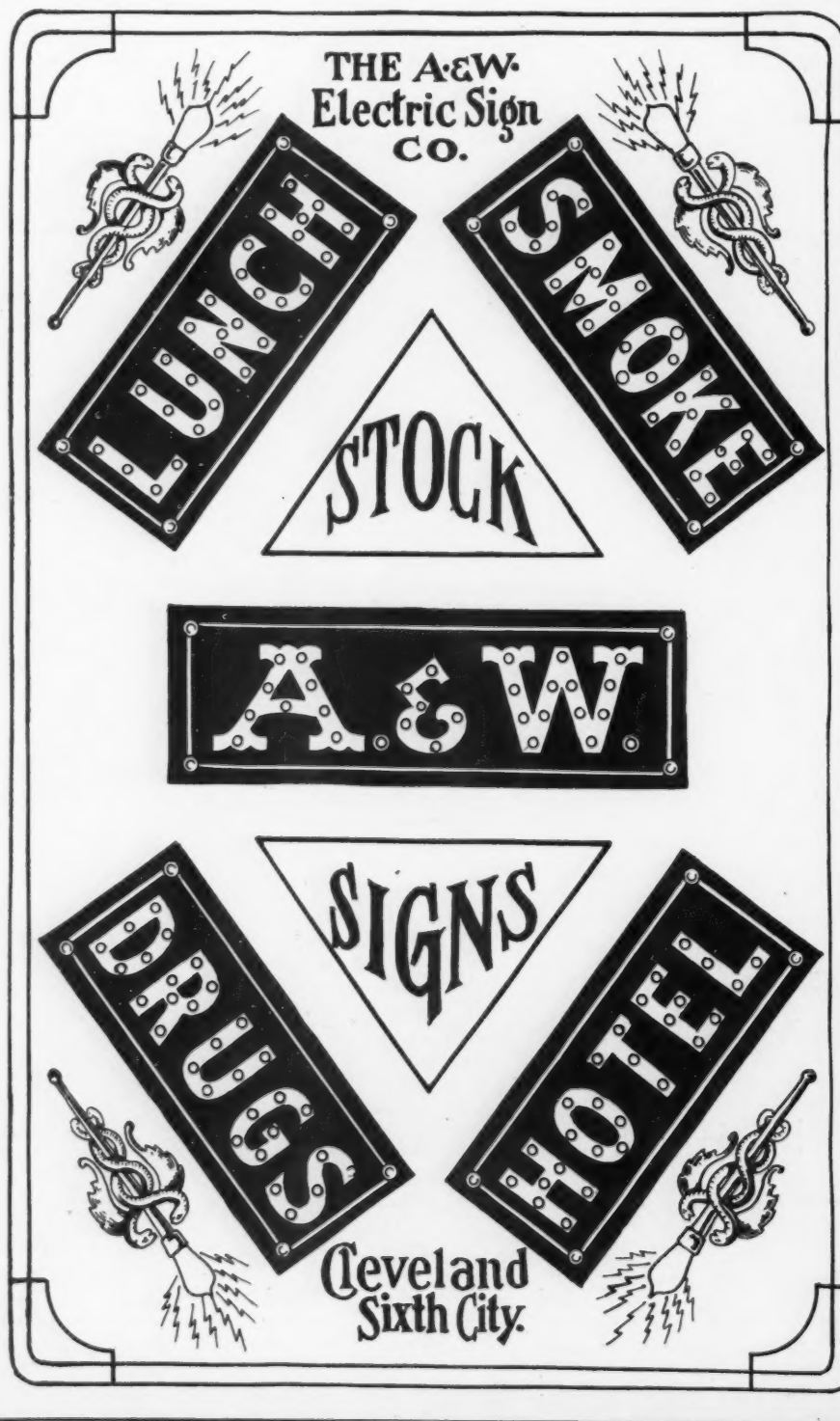
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Follow the suggestions made and "Dog Days" will show you the best business of the year.

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colors. This will cost about \$1.25 a yard and is a good investment, as it allows for frequent changes in the decorative color scheme. A mistake often made in window dressing is the plan of crowding everything down to the front of the window. If properly arranged, the articles in the back part of the window will attract as much attention as those near the glass. A very pleasing arrangement can be secured by the use of wood pedestals of various heights and plate glass shelves.

These properties can be purchased in any fixture store and by their use the window can be built up so that the articles in the back part are on a level with the eye. Care should be taken to avoid over-dressing the window—that is, putting in too many articles. An overcrowded window is a meaningless jumble and confusing to the eye.

There are arguments both for and against the placing of legible price tickets on articles in the display windows but the preponderance of opinion favors their use. Attractive windows do not result from haphazard work but are the result of skill and study. The window dressers in the prominent mercantile establishments are important individuals with big salaries and they must serve an apprenticeship of several years and study their work most thoroughly before they are qualified to act on their own responsibility. Any electrical merchant can secure attractive windows in two ways. The first is by arranging with some competent outside window trimmer to dress the windows at regular intervals and the second method is to assign this work to one of the regular store force who can, by observing the windows in other lines of merchandise, soon acquire the knack of making attractive displays.

The windows should be changed at least once a week and twice a week if possible—the oftener the better. Not only should the articles in the windows be changed but the method of grouping should be distinctly different each time. The reason for this is that, although the articles might be different, if always grouped in the same way, there will be a monotony about the windows which will cause diminishing interest on the part of the passersby. No article should be allowed to stay in the window longer than a week on account of the dust more or less prevalent in all windows. Highly polished articles tarnish very quickly when exposed in a window and they soon lose their freshness. If left in the windows too long they cannot be sold as new goods.

Freak displays, such as automatic figures and moving scenic effects of various kinds, should be avoided. These things always attract a crowd of people who have little else to do but look in windows. They have more time than spending ability. The possible customers who would be attracted by a window of articles that would interest them are forced to walk out in the gutter to get by.

If the store is located on a thoroughfare where there is some night traffic, the windows should be well lighted until eleven or twelve o'clock or at whatever hour the traffic ceases. A time switch can usually be used to good advantage. The subject of arranging the window lights to secure the best results needs careful study. A system of reflectors should be used which will properly diffuse the light over the entire display but it is important to bear in mind that it is the window itself which is to be lighted and not the sidewalk in front or the interior of the store.

The interior arrangement here shown has

a row of show cases on either side. These cases can be bought for \$5 to \$8 per running foot, according to the quality of glass used and other details of construction; each case should have two adjustable shelves, either of glass or of wood. Cases are made which cost as much as \$15 a running foot. These are the all-plate cases with marble base and are very handsome in appearance, yet very acceptable cases with wood frames can be bought for the first named price. Standard cases are six and 8 feet long, 24 to 26 inches deep, and 42 inches high. Wall cases are shown in back of the show cases. These provide room for stock and the upper sections are fitted with adjustable shelving. Sliding glass doors are built in front. The doors of the floor cases and the wall cases should be made as close fitting as possible.

In front of the cases a suitable number of seats should be provided. In busy seasons customers will wait to be attended to much longer and more cheerfully, when they are seated than when they are compelled to stand up.

On top of each floor case, two or three articles of the same general character as those within the case, should be placed where they can be examined by the customers and demonstrated by the clerks.

In some establishments it is considered a good rule to expose the most reasonable priced articles on top of the cases and then when the interest of the customer has been aroused and before the sale is closed, bring out the better grade for comparison. This is a matter for each merchant to determine for himself.

There is opportunity for considerable modification of the plan shown without changing the general ideas of good store arrangement. This store is designed not only for the sale of merchandise but also for general contracting or other similar work. The space devoted to the offices or to the supply stock room could very easily be contracted and the space necessary for the display of the appliances could be extended further toward the rear if necessary. The arrangement of the stock in the show or wall cases is a matter for each owner to decide for himself; in fact, the arrangement should vary with the seasons; in summer, for instance, fans should be given a prominent position, while in winter they should be relegated to some more obscure position and the heating devices brought forward.

On either side of the store provision is made for a cash register and wrapping counter. This arrangement will help the sales force to wait upon the customers rapidly and in busy seasons every minute is valuable. The oval end display case and the display tables in the center should be devoted to merchandise which it is desired to push. These three display spaces are the most valuable in the store as they are seen by everyone who enters the store and passes from the front to the rear.

The crosses within circles indicate the probable position of the overhead lights if the indirect system or large ceiling units are used. There is one justifiable extravagance for the electrical merchant and that is the amount of light used in the store. The show cases should be well lighted and whenever the store is open, the entire interior should be well, if not brilliantly, illuminated. An ill-lighted salesroom would be a very poor advertisement for the electrical merchant's wares.

Exactly what constitutes good store service is difficult to define. It is largely obtained by the application of common-sense rules of governance and even if the service

is not perfect at first, careful observance will show many ways in which it can be improved and brought up to a high standard of perfection. The important thing to remember is that the quality of the store service is a big factor in determining the success of any establishment.

Anyone who enters the field of electrical merchandising must predetermine one thing, and that is to conduct his business on progressive lines. Merchandising is rapidly becoming a positive science. Experts are making exhaustive studies of the "reason why." Success is rarely a matter of luck. There are certain well-defined causes governing every big success and every failure. Even with a most careful study of his goods, his clerks, and his customers, the electrical merchant will be continually making mistakes. These mistakes, however, will be his salvation if he recognizes them and profits by them.

Meterman's Handbook a Masterpiece

O. J. Bushnell, of Chicago, has done a great work. The Meterman's Handbook, issued by a committee of which he was chairman,

is one of the most complete and valuable publications issued by the Association.

The Handbook is divided into 19 chapters, and contains 1,060 pages and approximately 750 illustrations. Very naturally it covers the subject thoroughly from beginning to end, and while it is written in plain language suitable to men who lack technical education the data is such that the most experienced meter specialist will find much that is new, valuable, and helpful in it.

The Association cannot continue the issuing of data of this sort without making membership a necessity.

Bewhiskered Solicitors Best

A "curb-stone session" of men interested in irrigation service was one of the impromptu features of the convention. About 50 western delegates got together to discuss ways and means of securing and handling this class of business. In analyzing the qualifications of an irrigation solicitor, the point was made that he must not alone have a good, all-round knowledge of farming, but that a clean-shaven face is a real detriment.

The G-E Radiant Grill

Since this Grill was announced a few months ago, we have been flooded with orders from all parts of the country. Thousands were sold in a few weeks. We have twice doubled our weekly output.

The popularity of this new 600-watt device is unquestioned. Its many uses, popular price, visible glowing coils, neat design, careful workmanship and attractive finish, all combine to make this Grill one of the quickest selling cooking devices on the market.

We are now prepared to fill all orders promptly.

General Electric Company
Principal Office: Schenectady, N. Y.

District Offices: Boston New York Philadelphia Atlanta
Cincinnati Chicago Denver San Francisco

The Guarantee of Excellence of Goods Electrical is the Monogram Trade Mark of the General Electric Company

THE delegates to the Seattle Convention of the National Electric Light Association are cordially invited to visit the power plants, sub-stations, display rooms and general offices of The New York Edison Company if on returning they pass through New York

The conveniences of the Company's offices are at the disposal of any delegate or visitor

Always at your service

The New York Edison Company



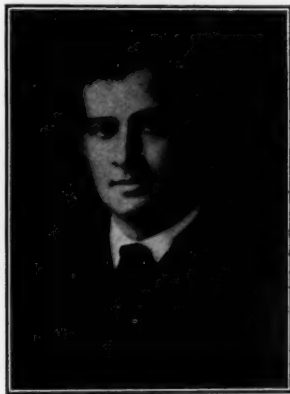
TABULATED RETURNS TO 350 INQUIRIES SENT OUT TO CENTRAL STATIONS BY THE COMMITTEE ON COMMERCIAL DEPARTMENT WORK

No. Assigned Central Sta- tions Re- porting	Population	Gross Revenue, 1911	Increase in Gross During 1911	Total Cost Commercial Department (Includes Advertising)	Per Cent. Total Cost to Gross, 1911	Amt. of Gross Increase per Dollar of Com- mercial Cost	Gross No. of Con- tracts Ob- tained, Lighting and Power	Commer- cial Dept. Cost per Contract Obtained	Kw. Equivalent of Contracts Obtained	Commercial Department Cost per Kw. Connected
CLASS A. POPULATION 25,000 AND LESS										
1-A*	14,300	\$176,525.56	\$23,418.78	\$3,759.50	2.1%	\$6.25	1,307	\$2.75	472	\$7.95
2-A	15,000	143,621.43	23,740.00	2,238.55	1.6%	10.42	354	6.33	271	8.25
3-A	15,000	220,036.48	108,867.29	3,780.52	1.7%	28.75	114	32.20	755	5.00
CLASS B. POPULATION 25,000 TO 100,000										
1-B*	30,000	\$213,674.44	\$57,914.11	\$6,924.11	3.2%	\$8.37	1,073	\$6.46	1,903	\$3.63
2-B*	30,000	165,068.46	23,187.22	2,681.59	1.6%	8.66	2,671	.99	1,059	2.53
3-B*	30,000	457,454.81	57,070.86	4,685.33	1.1%	12.20	2,168	2.16	1,615	2.90
4-B	32,000	530,565.16	150,963.55	59,696.86	11.1%	2.52	1,692	3.52	13,863	4.37
5-B*	38,000	147,013.00	10,492.66	4,716.90	3.2%	2.22	336	4.00	717	6.60
6-B	44,000	244,038.00	23,563.00	2,660.11	1.1%	8.85	1,064	2.57	1,165	2.28
7-B	44,115	192,349.15	20,712.83	5,835.42	3.0%	3.55	533	10.95	727	8.05
8-B	44,400	255,262.59	25,815.40	9,513.56	3.7%	2.72	.....	.....	.....	.....
9-B	46,000	319,007.20	37,913.68	4,824.00	1.5%	7.85	1,824	2.64	2,531	1.90
10-B*	50,000	404,777.01	125,040.82	8,424.23	2.1%	14.80	7,570	1.11	7,743	1.08
11-B	51,500	346,171.82	25,809.41	11,780.91	3.4%	2.19	2,395	4.92	2,593	4.54
12-B	52,500	309,429.00	91,801.00	12,960.00	4.2%	7.06	3,881	3.33	2,284	5.66
13-B*	68,000	519,058.27	84,566.45	12,808.19	2.4%	6.60	1,385	9.28	3,287	3.90
14-B	69,000	208,457.93	.....	6,814.67	3.3%	.....	.....	.....	762	8.95
15-B	86,000	468,179.20	45,727.31	12,239.16	2.5%	3.73	2,556	4.78	4,087	3.00
* Combination Gas and Electric Property.										
CLASS C. POPULATION 100,000 TO 250,000										
1-C	117,000	\$620,618.54	.....	\$10,735.10	1.7%	.....	2,053	\$5.20	1,390	\$7.70
2-C	150,000	1,500,508.80	\$134,750.40	41,777.42	2.5%	\$3.23	3,305	12.65	11,979	3.49
3-C	200,000	785,597.22	37,747.60	9,491.43	1.1%	3.98	3,676	2.58	10,123	0.94
CLASS D. POPULATION 250,000										
1-D	310,000	\$1,459,566.80	\$183,525.78	\$63,968.25	4.3%	\$2.87	8,048	\$7.95	46,916	\$1.36
2-D	340,000	282,997.00	33,402.00	6,643.46	2.3%	5.04	1,149	5.79	3,248	2.04
3-D	465,000	3,543,321.00	623,624.50	75,336.72	2.1%	8.27	20,824	3.61	18,000	4.18
4-D	760,000	3,605,515.00	233,995.00	153,415.39	4.2%	1.53	5,644	27.20	8,466	18.10
5-D	2,200,000	13,995,779.00	1,760,325.00	390,000.00	2.8%	4.43	79,382	5.00	45,120	8.80

(Continued from page 312)

The committee would call attention to the small number of contracts taken by station 3-A, the reason being that this is a peculiar power situation. Likewise 4-B shows a high percentage of Commercial Department Cost to Gross Income, which indicates the fact that this is a special power situation, necessitating special attention and expenses proportionate, on account of the business being of a class difficult to obtain and especially so with natural gas competition.

In order that the tabulated returns shown herewith be not misleading, special attention is called to the fact that the gross revenue and increase in gross revenue reported in



James E. Davidson, Portland, Ore., Member of Committee.

many cases include revenue received from selling current for street railway service. For instance, the central station designated as 5-D shows a gross and increase in gross, of which approximately \$3,500,000 is secured through the sale of railway current.

In a few instances the gross and increased

gross include revenues from merchandise sales. The committee in these instances was unable to report figures strictly exclusive of these. The cost of commercial departments for such companies includes the cost of maintaining their merchandise sales departments.

Under the caption "Gross Number of Contracts Obtained—Lighting and Power," the total number of contracts for each company is given, showing the total number of contracts written without deducting "cut-outs." It can readily be seen that the actual number of additional customers taken on for the year may be not more than one-third of the number of contracts shown, for the reason that many of the contracts are transfers, and customers often have from two to five classes of service in the same building—i. e., for electric sign, for fixture and service rental, for fans, for power, for window lighting, besides that for general lighting.

Under the caption "Kilowatt Equivalent of Contracts Obtained" will be found figures which show the total connected load obtained, only a portion of which, however, may be net additional connected load, since it seems difficult for the majority of companies to report actual net increase in connected load. It is seen from a glance at the tabulated results that there is a considerable range in percentage figures of Commercial Cost to Gross Income as indicated below:

Class A, from 1.6 per cent to 2.1 per cent.

*Class B, from 1.1 per cent to 4.2 per cent.

Class C, from 1.1 per cent to 2.5 per cent.

Class D, from 2.1 per cent to 4.3 per cent.

*11.1 per cent for 4-B not included—refer to previous explanation.

Leavenworth, Kansas

The City of the New White Way

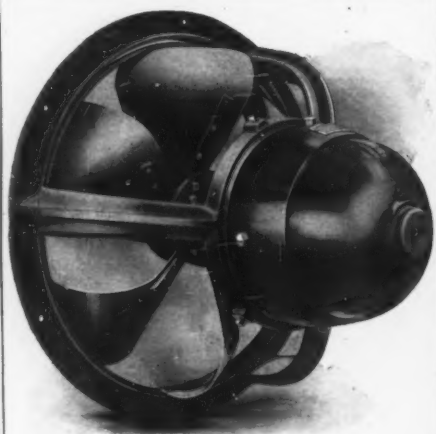
Offers Ideal Sites for
Manufacturing
Purposes

CHEAP POWER

Perfect Service
A Good Town to Live In

Leavenworth Light, Heat and Power Co.

Leavenworth,
Kansas



You Have Shown Your Merchants the Value of Good Illumination—

Now Show Them the Value of

Ventilation!

By demonstrating the influence of good lighting the Central Stations have created an enormous new and additional market for current among merchants and manufacturers.

Poor air is just as big a handicap as poor lighting and you can prove it. We'll show you how.

Begin your campaign now and sell

Peerless Exhaust Fans

to every store and shop on your lines.

There is no better fan made for AC or DC service.

Motors designed for every sort of service. Consult our engineering department.

Address—Motor Department.

The Peerless Electric Co.

Warren, Ohio
Agencies in all Principal Cities

The committee believes that 2 per cent of the gross revenue is not too much to expend in ordinary situations for commercial department work, nor 4 per cent for quick results where fields are undeveloped or in peculiar situations, such as with strong electric competition, natural gas competition or in situations where the commercial department must needs spend much time in public



H. N. McConnell, New York City, Member of Committee.

policy and complaint work. It is, however, very difficult to lay down a rule or fix the amount of money which should be spent for commercial work without first having studied the particular situation. It is hoped that the tabulated returns showing results obtained in twenty-six cities will give the small central stations an idea of the amount of money that they could profitably spend in maintaining a commercial department, or at least in securing the services of commercial solicitors, however small the city, for special campaigns or for continuous effort, in order that they may develop their field to its fullest extent. By keeping a careful and accurate record of all expenses that are required for exploiting new business the results obtained can be compared with the cost as the work proceeds. The committee, however, would call the attention of the smaller central station companies to the fact that it is profitable to employ men who are skilled in the securing of new business and in coming in contact with the public, for the reason that experience has shown money spent for such purposes will be returned many times over in profitable revenue and good will.

The committee, after studying the tabulated returns, ventures the opinion that in ordinary situations as found in the majority of cities throughout the country, if from 2 per cent to 2½ per cent of the gross annual revenue were spent in commercial department work, for each dollar so spent there might be expected \$4 in increased gross revenue.

The tabulated returns show further that under average conditions the following schedule represents present practice in the number of solicitors retained in the field actively engaged in securing contracts:

- Class A, 1 solicitor per 10,000 population.
- Class B, 1 solicitor per 15,000 population.
- Class C, 1 solicitor per 15,000 population.
- Class D, 1 solicitor per 20,000 to 25,000 population.

The results obtained by any organization, particularly the commercial department of a central station company, depend so largely upon the organization itself, the policy of the company and the conservative or aggressive lines along which it conducts its business, that the committee does not wish it understood that the figures given above or elsewhere are to be depended upon for every

situation, for such may not be the case. The few facts and figures obtained by it and its deductions therefrom should, however, furnish food for thought and stimulate interest in the keeping of commercial costs with a consequent closer supervision over commercial department work in general, and this should make it possible to obtain quite accurate data at a later date.

In conclusion the committee suggests that central station companies adopt for keeping record of the cost of Commercial Department work either this form offered or some similar form, which will show results in the same or a like manner, and that they send the final figures quarterly, for the next twelve months, to the Central Bureau of the Commercial Section, New York City, to be listed by number for reference for a further and more complete report by the Committee on Commercial Department Costs to be appointed for another year.

A Plan for Increasing the Power Load

A Paper Read Before the Commercial Section in Convention at Seattle

By H. W. COPE

Figure 2 gives the increase in the use of power for manufacturing in the United States since 1870, as compiled from the Census Bulletins, and shows the total actual horse power installed in the four main

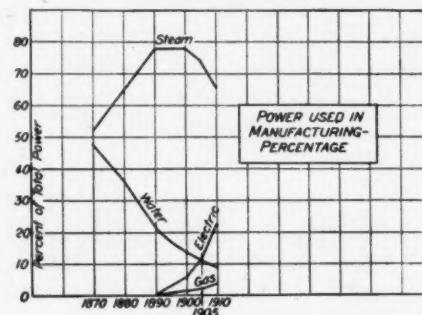


Figure 2.

forms of power—namely, steam, water, gas, and electricity. Figure 3 shows these curves plotted in percentages of the total. The predominance of steam is very marked in both of these curves, but Figure 3 shows very clearly that steam power has reached its maximum percentage and is rapidly falling off, while electricity is increasing with tremendous rapidity, especially within the last five years. Still, in 1909, but 22 per cent of the power used in the whole country was electrical power and but 36 per cent of this, or about 8 per cent of the total power, was supplied from the central stations. The field for the central station is, therefore, very far from the saturation point, and the

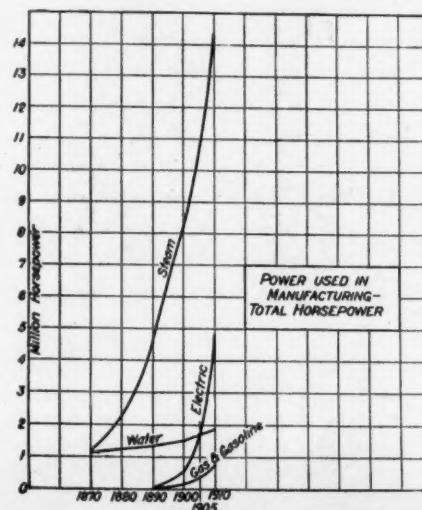


Figure 3.

opportunities for the future are almost unlimited, every one of these power-users being a prospect for electrical power. It will be observed from this curve that, especially in recent years, the central stations generally have been educating power-users in the advantages of electricity and that sentiment is growing in its favor. Motor manufacturers are increasing this sentiment by their advertising and by the efforts of their sales engineers, and as the sentiment is cumulative, one good installation influencing another through the medium of the industry itself, the future use of electrical power will show even more rapid progress.

A proper plan of campaign is the first essential to insure success. It is the writer's belief that the scheme set forth herewith contains the fundamental elements to make it the most effective plan that has ever been carried out, for while it is outlined with special reference to large central stations covering a broad area and many classes of industries, it is equally well adapted to the smaller stations which are more restricted in their operations, both by reason of limited field and fewer solicitors and engineers. Except as the economical layout of transmission circuits may slightly alter it, the plan of the campaign is to secure information on every power-user in the territory allotted to the central station; to classify the users by industries; and then to concentrate on one industry at a time, cleaning up each before going on to the next.

First, then, a house-to-house canvass must be made to secure a complete list of prospects for all industries with the following information on each prospect:

1. Class of manufacturing.
2. Approximate connected horse power.
3. Approximate maximum demand, and time of occurrence.
4. Approximate average demand.
5. Approximate load factor.
6. Approximate period of operation.
7. Estimate of present factory output.
8. Estimate of present power costs.

When this information has been secured the names of the prospects are to be brought together under their respective industries, then these industries are to be grouped in three classes, each class having the same general effect upon the central station load. The effect on the station load may be determined from the time of the maximum load, the approximate period of operation, and the load factor.

First, there are those which will derive the greatest benefit from the use of electric power because of their low load factor and consequent high investment charge per unit of power consumption. In this class are machine shops, planing mills, blacksmith shops, small foundries, printing plants, small manufacturing concerns and many other miscellaneous users of power.

The second class consists of power-users whose demand is nearly constant throughout the working day, but whose manufacturing conditions, such as scattered location of buildings and heavy machinery consuming much power, demand an economical method of distribution. Such industries as pipe foundries, textile mills, brick plants, potteries, and breweries belong to the second class.

The third class is made up of the power user whose work either requires practically no attendance, and can therefore be performed after midnight and before the day load proper begins, or whose manufacturing process is continuous, or continuous except for the few hours during the peak. Municipal water-pumping plants, ice plants, ce-

ment plants, paper mills, and others are included in this class.

As the first class will ordinarily receive the greatest direct benefit by using central station power, they will be the most enthusiastic boosters for purchased power and should therefore be worked on first. The additional business secured will also lower the cost of production, and because of the double benefits derived the central station will then be in a still better position to take on customers on the second and third classes. The prospects in each class are to be worked upon, industry by industry, each salesman handling one industry at a time; for example, all the printers will be thoroughly canvassed, layouts made, motors specified, contracts signed, and the trade cleaned up before progressing to the next industry, which will then be taken up in the same manner and completed before the third is touched. When the first class is completed the second class may be attacked and then the third.

This campaign by industries is unlike the usual geographical campaign with its allotment of specific territories to each salesman,

and has many fundamental advantages not to be found in any other plan. Information regarding every prospect must be secured at some time, and obviously this can be accomplished with a minimum expenditure of time and money if done all at once instead of extending it over a period of several years, and it affords the manager of the new-business department a bird's-eye view of his entire problem which is invaluable in commencing a systematic campaign. It makes it possible to work first upon those prospects which will on the whole be most profitable. It affords the best means of gathering complete data on each industry from the many available sources, the National Electric Light Association, the magazines and the motor manufacturers. Much reliable information may be had as to what other central stations have done in the same industries, the rates they have made, their power consumption per unit of manufactured product and the economies which have resulted, furthermore, after compiling complete data, which have enabled the solicitors to start actual work in the field, the desired information from outside sources for the

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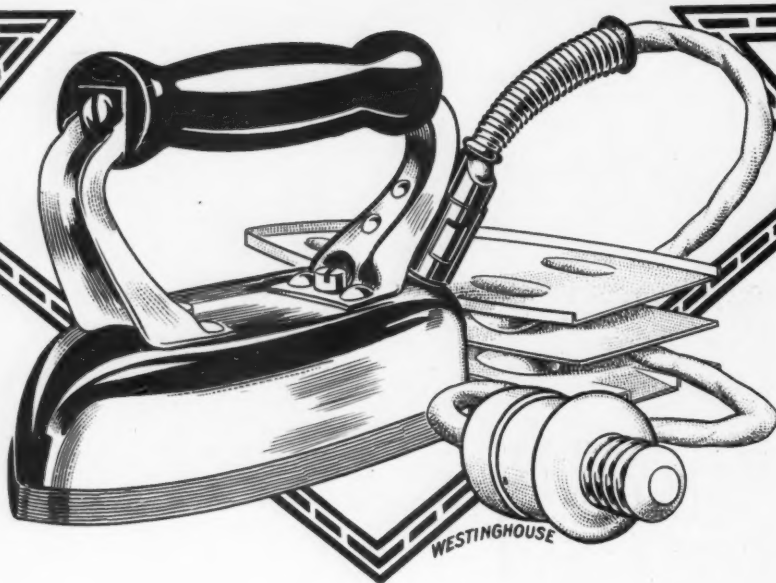
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remaining industries should be put under process of collecting in the order of the campaign program, so that it will be in readiness for the salesmen when the succeeding industries are attacked, thus insuring against loss of time.

From the complete data it is possible to decide better what rate should be given to each industry and better to anticipate the results.

Better results will be secured by the salesman. Laying out work in this manner is like setting a rate in a machine shop—it sets a “bogey” to which the men are to work. It inevitably results in a more efficient organization. The salesman approaches his prospect armed with all the facts. As he works day by day on the one class of customers he, of necessity, becomes familiar with manufacturing processes and is increasingly fitted to analyze requirements and to recommend equipments which will give the maximum of efficiency and the most satisfactory operating service. He really masters the situation; whereas, when he jumps from one industry in the morning to a totally different one in the afternoon, and so on, continually changing, he inevitably becomes superficial and fails to grasp the essentials for a comprehensive, high-grade layout. After a salesman has thoroughly analyzed one industry from the ground up so that he not only understands the problems in detail but has solved all of them, he is in much better shape to take hold of another and handle it in the same efficient manner. Because of his success, he will gain increased confidence in himself; confidence backed by a thorough knowledge of his subject will lead to higher accomplishments; it will be cumulative, and not only greater returns will result to the central station, but the salesman himself will be more contented because of it.

The prospect will be handled to better advantage. He will respond more readily to the arguments of salesmen who are able to talk to him intelligently about the running of his business, and confidence will be established at the start. One good installation leads to another, hence it is well to sign up the leaders first. Manufacturers will not be slow to electrify their plants when once convinced that by so doing they can reduce their manufacturing costs. Orders will result from any well-conducted campaign, but will be more readily given when the example is set by other manufacturers engaged in the same industry. When a prospect comes to realize that the local central station is interested in securing increased efficiency for him and actually has the ability to analyze his own peculiar requirements and to make recommendations which will save money, the business is as good as secured. Under the influence of an aroused and interested industry, a certain number of orders fall in without especial effort on the part of any one. The rate becomes a less important consideration in the prospect's mind.

In this connection, it may be stated that it is advisable to tabulate the results which have been secured by the prospect with his original equipment and the results he will obtain by the proposed change, placing them in a prominent place, preferably on the first page of a more detailed report. This report left with the prospect for his careful consideration acts as a silent salesman which is frequently more convincing than the personal appeals of the salesman; this leaves less to the persuasive power of the salesman and permits the prospect to persuade himself to become a purchaser of power.

This plan lends itself admirably to the

practice of efficiency engineering; in fact, it leads directly into efficiency engineering, which is a most important factor in a successful power campaign. While every ambitious salesman will himself become an efficiency engineer in some degree, the larger central stations may find it profitable to select one or more men who can specialize in it, or can retain an outside engineer to investigate the more important installations, and recommend improvements in the layout of the machines, the routing of the work, the speed of operation of the machines, and other points which will improve manufacturing conditions. As the efficiency engineer necessarily works by industries, it will be further apparent that the central station which concentrates upon one industry at a time can most readily secure his services and get the most from him.

For the manufacturer it means increased production with decreased costs, and to the central station increased revenue with reduced costs.

Report of Committee on Steam Heating

COMMITTEE: S. MORGAN BUSHNELL, Chairman; A. D. SPENCER, E. F. TWEEDY, H. M. WINTER, DAVIS S. BOYDEN, EUGENE HOLCOMB, THOMAS DONAHUE.

The committee appointed this year to take up the subject of steam heating represented three different types of steam heating companies: First, those which heat by hot water, the water itself being heated mainly by means of exhaust steam from electric light and power stations; second, those which heat by steam, using either exhaust steam from electric light and power stations or live steam from independent boilers; and third, those which heat from decentralized steam plants—in other words, from small private plants used as block stations.

Individual reports were prepared and submitted by the majority of committee members covering these three aspects.

Mr. Thomas Donahue of Lafayette, Ind., made a report embodying his views on the subject of hot water heating. Mr. A. D. Spencer of the Edison Illuminating Company of Detroit, Mich., made a report giving the experience of the Central Heating Company of Detroit. This company operates two stations, one using live steam exclusively, and the other to a considerable extent using exhaust steam from the engines in an electric light and power station.

The third class of heating (from decentralized steam plants) was represented by three committee members from Boston, New York, and Chicago. This system is used by central stations only in large cities where a great amount of radiating surface is located within very small areas. In Boston and Philadelphia these small block heating plants are operated by the local electric power companies while in New York and Chicago they are controlled by independent steam heating companies who work in harmony with the central stations. These members' reports together with various forms for contracts and specifications are presented in the report of the committee, together with numerous curves and tables. The general findings of the committee are embraced in the following abstract:

Heating business can be secured at rates equivalent to the cost to the consumer operating his own plant. Possibly slightly higher rates can be charged, because of the convenience of the service. Residences and small business places, which pay higher prices for coal, can be charged more than larger buildings where an engineer is em-

ployed and where the coal cost is about equal to that of the heating company. As those private plants have no distribution investment and no distribution heat losses, it is hard for the heating company to compete at a profitable rate. In residence districts profitable rates undoubtedly can be charged.

Steam costs, like electric costs, can be divided into service (per customer) costs,



S. Morgan Bushnell, Chicago, Chairman of Committee.

capacity (per square foot radiation) costs, and output per (thousand pounds steam) costs. As heating load factors are substantially the same for all customers, it is fair to ignore the capacity costs and to consider costs as made up of service costs and output costs. Rates should be made up of a service

thousand pounds of steam as the consumption increases. Rates should cover all costs, including a proper proportion of overhead charges, interest charges, and depreciation. The last item is very important, as steam distribution systems are found to be subject to fairly rapid deterioration. In figuring the cost of exhaust steam, no allowance should be made for the value of electricity generated by the same steam, as systems originally using all exhaust steam may later be forced to use a large proportion of live steam.

Hot water heating systems use flat rates, as it is impossible to meter the service. Some steam heating systems use flat rates, but the tendency is toward meter rates. Meter rates are desirable, as they charge each customer for actual heat used, and do not penalize one customer for the waste of another. They tend also to cause economy in the use of heat, and permit the company to serve its customers at lower rates. Flat rates are usually based on radiation connected. Under this system it is necessary for the heating company to supervise all installations and specify the amount of radiation required.

Meter rates are based on the pounds of steam condensed. Under this system supervision of installations is desirable only as a matter of policy, to insure satisfied customers. The meter system introduces an element of cost and annoyance in the maintenance of the condensation meters, which are subject to severe operating conditions and are a source of much trouble.

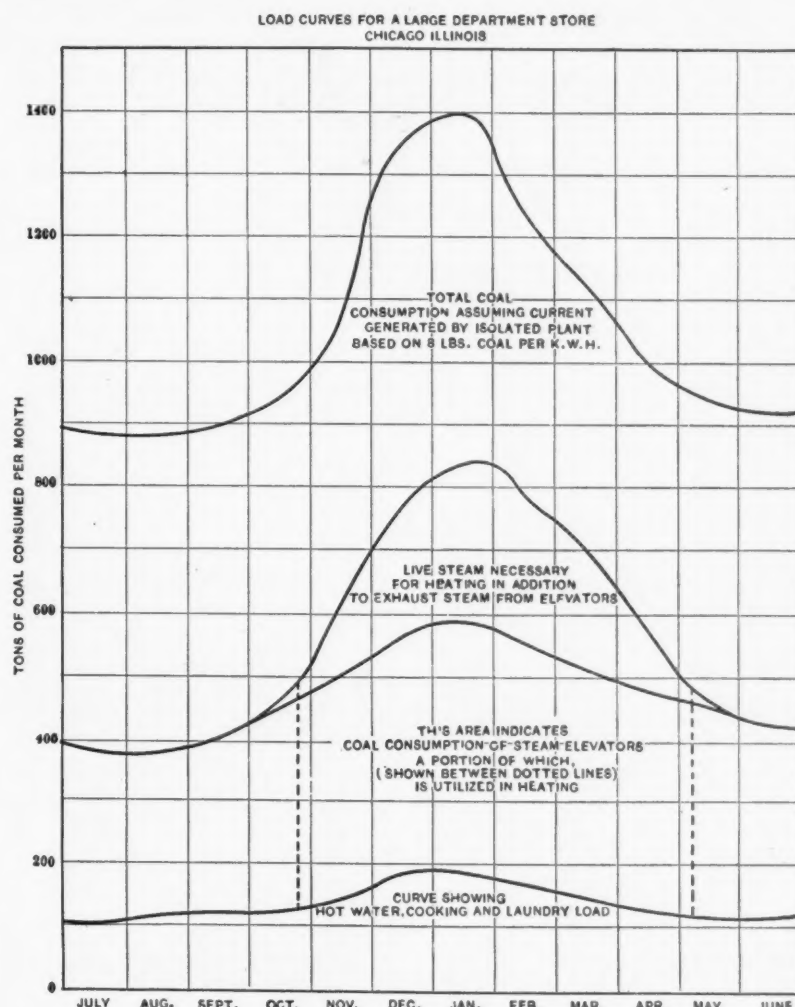
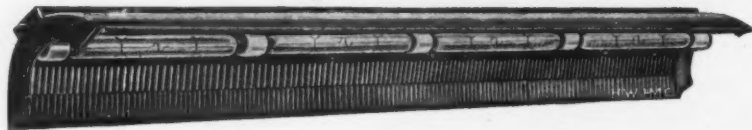


Figure 4.

charge and a charge for steam used; or at least the system of rates should be such as to automatically cover both elements of cost. This is generally taken care of by a sliding scale of rates which reduces the cost per

High pressure service for power has proved very unsatisfactory in Detroit, due mainly to inability to properly meter the service and to the necessity of keeping mains alive during the summer months. The service

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Mr. Central Station Man, we will finance the sale of Washing Machines to your customers.

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already on the system is gradually being disconnected, and new customers are not encouraged. Where meters are used it is found desirable to maintain a somewhat elaborate system of inspections. The conditions under which the meters operate are severe. Heat, moisture, and dirt are always present. Defective traps may allow steam to get to the meters. No meter has been found which operates satisfactorily under such conditions without frequent attention. Many smaller companies read and inspect the meters daily. In larger systems this becomes impracticable. In Detroit meters are read every five days. Meters found out of order are promptly repaired. All readings are checked, and sudden decreases in consumption are followed up by inspection. A system of monthly periodical inspections is being inaugurated on the large meters to remedy troubles before any revenue is lost. Every summer all meters are overhauled and put into first-class condition.

The point of greatest weakness in a district heating system is in the customer's installation. Regulating valves stick, causing too low or too high pressure; traps stick, flooding the system or allowing a leakage of steam into the basement; automatic air valves fail to operate, causing the radiators to fill with air; strainers clog, causing flooded installations; valves leak and ruin floors and ceilings. For these reasons it is essential to maintain a patrol service, in order to keep customers satisfied with the service. It is generally found desirable to have small repairs and adjustments made by the patrol men, rather than to ask the customer to hire a steamfitter. Such repairs may be charged at cost of material used.

It is found that many customers require considerable assistance and education before they are able to regulate their systems satisfactorily. Customers' complaints should receive careful attention and full investigations and reports should be made on all such complaints. Advice as to operation of installations should be furnished readily, and customers should be assisted in every way to make the service satisfactory. Very frequently complaints are due to poor installations or to improper operation of installations. An expert inspector with a thorough knowledge of the principles of heating and ventilation should be on the staff of every heating company.

On flat rate systems elaborate specifications for customers' installations are essential. On meter systems certain points should be covered by specifications for the protection of the heating company and to insure the satisfaction of the customer. ****

A report recently received by the committee from the New York Steam Company states that in their experience the average building uses 25 per cent less steam when operating on a meter than when operating on a flat rate. This has to a considerable extent been borne out by the experience of the heating company in Chicago, which has already transferred several of its customers from a flat rate to a meter basis.

There are many who believe that steam heat should be sold on a basis corresponding to that of many lighting companies which have a primary charge and a secondary charge—the primary charge being a certain sum per month, depending upon the size of the installation served; and the secondary charge being based on the readings of the steam meters. A large part of the cost of most steam heating companies consists in their investment for boilers, buildings, steam transmission systems and their accessories. It is very evident that a factory running 24 hours a day would make a greater use of the

same investment than a church, or a theatre, which is used only periodically. Accordingly there might be on the same consumption of steam a profit to the company in the one case and in the other a loss, depending on the amount of investment cost as compared with the amount of steam sold.

In the case of steam heating service, the primary charge could be based on the theoretical steam heating requirements of the buildings served. For example, the company should first by their regular formula determine the proper amount of radiation to be installed in the building. After arriving at the number of square feet of radiation required, this can be multiplied into a unit price per square foot per season—say 15 cents—and the fixed charge for the total heating season would be obtained. This charge might be divided into equal monthly installments, or in accordance with the following which has frequently been used: Five per cent (5%) payable October 1st, fifteen per cent (15%) November 1st, twenty per cent (20%) December 1st, twenty per cent (20%) January 1st, twenty per cent (20%) February 1st, fifteen per cent (15%) March 1st, and five per cent (5%) April 1st. In addition to this there should be a meter charge at so much per thousand pounds of steam, to be rendered each month on the basis of meter readings.

In a very interesting paper given by Mr. A. D. Spencer before the National District Heating Association in June, 1910, Mr. Spencer figured that the cost to their company in Detroit is practically sixty cents (60c) per thousand pounds, including allowance for interest and depreciation. In the same paper he figured that the cost per square foot of radiation each year averages

about 28.4 cents. He also showed in the same paper that the operating costs are just a little more than half the fixed charges. Therefore, on the basis of the cost of heating in Detroit, a rate which would just cover the cost would be about 15 cents per square foot of radiation per heating season, combined with a meter rate of thirty cents (30c) per thousand pounds as a secondary charge.

Mr. Byron T. Gifford, in his recent book on "Central Station Heating," figures that a central station plant with an investment of \$200,000, and a connected load of 200,000 square feet of radiation, and with coal at \$2 per ton, should have a service charge of 19 cents per square foot of radiation, in addition to a meter rate of 30 cents per thousand pounds of condensation. He figures on this basis an annual profit of 10 per cent.

In looking over the list of replies to questions sent out, there seems to be one point on which they are practically unanimous and that is that it is advantageous to engage in the business of steam heating, because of its general effect on the lighting business. Probably this is nowhere more true than in the case of large cities where the problem of competing with isolated plants becomes more of a factor.

In order to make a comparison between the electrical load and the heating and elevator load in a department store we have plotted a diagram (Fig. 4), showing the consumption of steam in a large department store in Chicago. In this store the heating company is operating the steam plant simply for heating, elevator, and cooking service, while the central station company supplies all the electricity required for electric light and power. An independent meter was

installed on the cooking and laundry service, and the heating service was of course discontinued in the summer. It is therefore easy to figure with a fair degree of accuracy the amount of coal used by the various steam requirements in the building. By plotting an additional curve showing the coal consumption that would be required for electricity in the building, in case an isolated plant were installed, we secure an approximate relation between the different elements which go to make up the heat, light, and power of such a store. This diagram is submitted as showing approximately the conditions in this particular store.

We note from this curve that in order to operate an independent plant of engines and dynamos for the electrical requirements of the building we would need an additional amount of coal, amounting to 88 per cent of that now used in the building.

The writer expects in a year from now to have curves showing the exact relation between the electrical load and the heating load, derived both from the monthly consumption and from daily tests showing the steam and electrical load curves.

In the early days of the electric lighting

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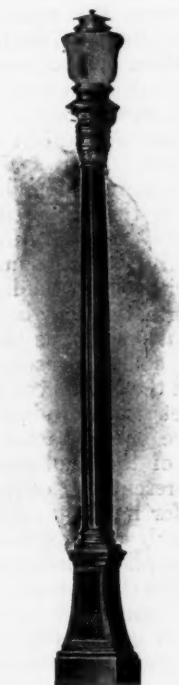
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Let us give you full details of our plan for co-operating with you. Where this plan has been applied, the business has increased very rapidly.

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We will be glad to send you complete data regarding cost of installation and a story of how the enthusiasm was aroused in New Haven on this now famous installation.

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industry the usual experience of the lighting company was failure and loss of the money invested. By the use of improved methods in the production and transmission of electricity many of the companies which were formerly operating at a loss have been changed to paying investments. The steam heating industry is now passing through a period when the balance is largely on the wrong side of the ledger. This fact, however, does not mean that this condition need necessarily be permanent. The trend of the times is all toward combination and the production of commodities on a large scale. The latest plans for the City Beautiful involve the doing away of small plants with inadequate methods for combustion and thus securing the abolition of the smoke nuisance. A great improvement can be seen during the past few years in methods of installation of steam pipe lines for central station transmission of steam. Improvements on steam meters are being made, and new schemes for efficiency in large steam producing stations are constantly developing. It is, therefore, not unreasonable to suppose that the civilization of the future

will not only expect, but demand, that great central stations for the production of light and power shall co-operate with corresponding equipments for the distribution of heat.

Seeing America First

Over five hundred delegates to the Convention were carried in the various special trains. All of the trains were composed of the latest equipment and no detail was omitted to make the trips easy and enjoyable. Many side trips and inspections varied the monotony of travel, while entertainment of many sorts was provided en route. Among the feature events of the trips was a Pullman car reception to celebrate the twenty-fifth wedding anniversary of Mr. and Mrs. Thomas E. Murray, of New York; a band concert by the Westinghouse band which joined one of the trains at some distance out and rode into Pittsburgh; a moving picture show in one of the observation cars; a minstrel show by one of the dining car crews; a vocal and instrumental concert, and a dance. These features were scattered through several trains, each of which had several original "stunts."

A N. E. L. A. "Little Journey."

A handsome leather-bound eighty-page booklet was the souvenir presented by the "National Quality" Lamp Division of General Electric Company, Cleveland, Ohio, to each of the delegates traveling to the N. E. L. A. Convention at Seattle on the six special convention trains, known respectively as the "Red," the "Blue," the "Orange," the "Green," the "Pink," and the "Purple." The title of the brochure is "A Little Journey"—reminiscent of certain of Elbert Hubbard's literary works—and its introduction was written by no less a person than "Fra Elbertus" himself.

The main text, which follows directly after a brief analysis of present electric train-lighting methods, by Mr. C. W. Bender, consists of terse descriptions of notable points of electrical interest along the routes of the trains, this material being arranged in the form of a diary, with blank lines for memoranda to be filled in by the tourist. The book is profusely illustrated with views of power houses, dams, transmission lines, street lighting installations, etc., selected from a collection of about three hundred such views.

A. Asher Jones

Mr. A. Asher Jones, formerly manager of the New Business Department of the Waco Electric & Gas Company of Waco, Texas, has resigned his position with the above properties to assume the management of the New Business Department of the Hot Springs Gas Company.

To Mr. Jones belongs the credit of having made Waco, Texas, one of the best lighted cities in the Southwest. The famous Texas Cotton Palace is a monument to his artistic genius in decorative lighting, and the advertising value derived from the spectacular illumination at night was in a large degree the means of the exposition's success.

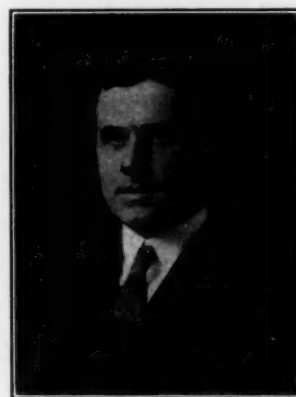
The Hot Springs Gas & Electric properties are operated by the National Light & Power Company of St. Louis, Mo., of which Mr. Judson H. Boughton is president, and Mr. W. C. Morehead secretary and treasurer.

Report of Committee on Competitive Illuminants

COMMITTEE: F. H. GOLDING, Chairman; W. D'A. RYAN, B. H. GARDNER, NORMAN MACBETH, T. F. ENGLISH, C. S. WALTON, WARD HARRISON, Secretary.

The most successful method for the electrical salesman to pursue in securing business where non-electrical illuminants are in use, is in no way different from that which should be employed when no competition is present. He should make a careful study of the needs and preferences of his prospective customer, and then without regard to the existing installation, design that lighting system which he believes will best meet these particular requirements.

If the customer is using gas, the cost of his present system may be readily ascer-



F. H. Golding, Rockford, Ill., Chairman of Committee

tained by adding his monthly bills, which in the case of a gas company making any effort to give satisfactory service, will usually include a charge for the regular inspection and maintenance of all mantle lamps. The maintenance charge for gas arcs frequently covers the rental of the lamp, and varies in different cities from \$.25 to \$1 a month. Where the customer maintains his own installation, the cost can only be approximated; however, the value of the time spent in cleaning and adjusting lamps must not be neglected.

In order that the salesman may be able to estimate the cost of the proposed electric service, it is obviously necessary for him to know first of all, the average number of hours per year during which the lamps will be used. This information may be obtained readily from the customer's gas bills and a knowledge of the hourly consumption of his lamps. If from the annual consumption of gas in cubic feet as determined by the monthly bills, there be subtracted the annual consumption of the pilot flames, the remainder will represent the cubic feet of gas actually used for lighting. This figure divided by the hourly consumption of the burners (exclusive of pilots), measured when all are in use, will give the average hours use per year of the "connected load." For example: A customer uses 65,600 cubic feet of gas per year for eight gas arcs which are found by test to have an aggregate consumption of 100 cubic feet per hour for the mantles and $2\frac{1}{2}$ cubic feet per hour for the pilot flames. The average annual use of these lamps is found to be $434\frac{1}{2}$ hours as follows:

$$\begin{aligned} 2.5 \times 8,760 &= 21,950 \text{ cu. ft. (annual consumption of pilots)} \\ 65,600 - 21,950 &= 43,650 \text{ cu. ft. (annual consumption of mantles)} \\ 43,650 \div 100 &= 436\frac{1}{2} \text{ hours (average use of burners)} \end{aligned}$$

(Continued on page 326)

"National Quality"



"Colonial Service"

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THE NEW QUAD

It Boils

Just like a coal stove—except perhaps a little quicker. Makes tea and coffee in the usual pot.

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Uses an ordinary frying pan for ham and eggs, fish, etc., and a deep pan for doughnuts or croquettes.

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Roast Beef, browned outside and rare inside, and other meats perfectly cooked.

A Fireless Cooker that works on 27 KW minimum per month per residence.—A Lamp Socket Load.

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ELECTRICAL MERCHANDISE AND SELLING ELECTRICITY

JULY, 1912

GET THE FIGURES

At the National Electrical Contractors' convention in Denver there will be another paper on "The Relationship of the Central Station and the Contractor." There was a paper along these lines at the New England Section meeting of the N. E. L. A. There have been dozens of others.

These "relationship" papers are of two sorts: one tells what the central station ought to do for the contractor, and the other tells what the contractor must do if the central station is to do anything. When the discussion of such papers takes place, everybody with a grievance on either side proceeds to air it. If all the arguments on both sides are to be believed, the central stations are in command of overbearing and irascible plutocrats who bark at you when you offer to do them a favor, and the contractors are a sort of Coxey's army of ignorant and unreliable "screw-driver electricians."

As a matter of fact, the contractor and the central station both need a good deal of education before this relationship problem will be settled. As one prominent New England contractor recently said, "The contractor is almost invariably a workman who has started in business for himself. He has no business experience and little or no capital." On the other hand, the central station man has a public utility education—which is far different from any ordinary commercial education—and his attitude and experience in merchandising appliances and in solving wiring-contracting problems are far from normal. The only way for them to get together is—to get the figures.

There is no ultimate or immediate profit to a lighting company in selling appliances or in doing wiring at cost or less. There is no real success in sight for the contractor or electrical merchant whose prices are so high that business cannot grow. The solution of both errors lies in a true and exact understanding of the costs of doing contracting work and doing an electrical merchandising business, and then in going ahead upon that basis. No man really expects anything more than a square deal; no man ought to

stand for less. The basis of a square deal between contractor and central station is a knowledge of cost figures. Upon this point all will agree. It is the logical basis for co-operative endeavor, and those who are anxious to promote mutual well-being can make a safe start by calling the various interests together in a series of conferences to get at the facts. These costs are matters of record, not of opinion. They are susceptible to proof, not to argument. The items which enter into such an analysis will be reasonably constant, though the percentages will vary with every locality and with different years.

Take the single item overhead. When a central station does wiring it not infrequently forgets this charge: with the small contractor, the N. E. C. A. states that it is something like 40 per cent. Take the cost of material. When a central station buys appliances, it is frequently able to bulk its purchases through a syndicate; the small dealer pays the long price. Take rent. Very seldom does the central station charge this item against its wiring or appliance department at full price; the contractor or dealer must pay comparatively a high rental if he is to do business in the retail district.

These are just suggestions. Every item that enters into the cost of doing business should be studied. Where the contractor's cost is too high, co-operation should reduce it. He should be shown that his methods are lax, that he is not buying to advantage, that his cost system is guesswork or worse. He will not object, when he sees that the effort is aimed to make his business solid and his profits sure.

And when this "cost conference" arrives at a conclusion, it is safe to say that neither the contractors nor the central station will care to disregard it. Some contractors who are favorably situated may do so; also some who are too unfavorably situated will see that it is only a question of time when they must retire from business. But that is incidental. Intelligent competition will keep the prices where they belong and should the contractors attempt to form a pool or run prices beyond reasonable figures, the central station is always in position to wield the big stick—it can enter the field and compete at a loss if necessary.

The central stations want prices low to encourage increased wiring and increased sale of appliances. The contractors want prices high so that profits will be large. But the maximum business and the maximum profits follow a schedule of prices which are based upon sound business reasoning. The only way to reason soundly is to have complete and accurate knowledge. Get the figures.

THE SERVANT AS A FACTOR

From a central station in the middle west comes a query that as yet has had no answer to our knowledge—"Can you suggest a way for the central station to get together a representative gathering of servants for the purpose of instructing them in the use of the electric iron, washing machine, and vacuum cleaner?"

Can you suggest a way? What is the answer?

As we all know from our own experience in housekeeping, the servant is a big factor in the success of any such household appliances as the central station sells and, in many cases, determines largely whether or not the innovation shall be adopted. We have in mind one trusted Southern negro cook who is this day obstructing the purchase of a washing machine. Though she has never used one, she insists that it tears the clothes and that she would rather operate the rub-board and spinal column method, and the mistress is content to let well enough alone. For no better reason, she obstructs the purchase of one of the best known brands of flour on the score that it makes poor bread.

There is nothing behind either of these cases but pure stand-pat prejudice, but nevertheless it rules, and these same influences are found in every household. Whether the servant be negro, Irish, Swede, Finn, Hungarian, or what you will, she will be found to have her whims and fancies, a powerful factor to help or hinder the cause of the central station. Are we not making a mistake in overlooking it? What can be done?

Has any central station sales department attempted to reach the servant class through its own social organizations? They are "birds of a feather," they have their dancing societies and the like. A lecture and demonstration possibly with a moving picture presentation would certainly appeal. It would be looked upon as very much of a "party."

Has any central station tried to reach the servants through their intelligence office? It can be demonstrated that superior intelligence and experience in modern methods of efficient housekeeping can command a better compensation. True, there are many of the servant class who cannot be successfully won on such an issue, because the question of efficiency does not interest them and the employer's economies are of small concern. But again it is among this very class that we find the loudest demands for this and that kitchen convenience. What she had in her last place she demands in this. Could the central station be criticised for fostering in her bosom a desire for the electric labor-saving devices for the home?

If any of our readers can shed light on this subject, it will be appreciated by our friend in the western city. It will carry a suggestion that will be utilized by many a man who has not yet recognized the opportunity.



(Continued from page 324)

Owing to the inconvenience of frequent lighting of gas lamps which are not provided with pilot attachments, the hours of burning for such units will be considerably greater than with an electric installation in a similar location. Knowing the average hours' use of light one may easily determine the annual operating expense of the electric installation from the company's rate schedule and the renewal charge for lamps. If the investment required for the electric installation seems large to the customer, the solicitor can well afford to make a liberal allowance for interest and depreciation on the first cost and include this item in the annual operating expense of the installation. As a rule the total will not be materially affected thereby.

When electric service has been installed in a location where economy is of primary importance, it may be well for the electrical salesman to keep the customer informed as to the reading of his meter and notify him if he is using his lighting equipment a greater number of hours than was formerly the case with gas. Because of the greater convenience of the electric light there will be a tendency for the consumer to use it more frequently, especially if he is particularly pleased with the installation, and under such circumstances the anticipated saving would naturally fail to materialize.

Many advantages in addition to its simplicity commend the method of basing comparative costs on actual installations rather than on candle-power distribution curves and the like. Thus, an efficiency of from 15 to 25 candle-power per cubic foot is claimed for some types of mantle lamps, but the consumption of gas in open flames which have an efficiency of from 2 to 4 candle-power per cubic foot forms a surprisingly large proportion of all gas used for illumination; in fact, a statement appeared in the *Gas Industry* for January, 1912, to the effect that this proportion was as high as 75 per cent of the gas so used. The results obtained in tests on various types of open

flame burners in general use are shown in Table I. Furthermore, many of the mantle lamps are equipped with burners of the cheaper, less efficient variety and a large proportion are of the old upright type. Fully 70 per cent of the mantles sold are of the 5, 10, or 15 cent variety. Again, not one installation in ten has been designed to meet the particular requirements of the location in which it is installed, either as to quantity or distribution of light; hence, in most instances, the consumer is using many more cubic feet of gas per hour than would theoretically be required to illuminate his store with the latest type of gas lamp.

Table I—Gas Flame Burners*

Burner	Pressures in Inches of Water at which Flames Would Probably be Used	Candle-power	Consumption in Cu. Ft. per Hour
3-ft. lava	1 to 3	11 to 14	4 to 7
6-ft. lava	1 to 2	19 to 22	5½ to 8
8-ft. lava	1 to 2	32 to 37	8 to 10½
5-ft. aluminum	1 to 2	22 to 21	5 to 10
5-ft. aluminum governor	1 to 8	16 to 19	3 to 9
7-ft. high-pressure Bay	1 to 8	17 to 32	4 to 11

The gas consumption as well as the candle power of a given type of gas lamp is such an uncertain quantity that the solicitor should invariably determine from the meters the actual consumption of several installations in his own town before attempting to formulate cost comparisons between electricity and any form of gas unit.

An electric installation also falls off somewhat in candle power with use, but this depreciation is of lesser magnitude and its extent can be much more closely defined. Losses in economy may be caused by:

Improper voltage conditions.

Inherent depreciation with age.

Accidental breakage.

Collection of dust on lamps and reflectors.

These are the only factors which can affect the performance of incandescent lamps in service and the electric salesman on

*National Commercial Gas Association' Proceedings, 1910, pp. 393 to 400.

competitive work should first of all be thoroughly informed regarding these points which affect his own product.

It is frequently pointed out by the gas salesman that a 5 per cent drop in voltage will reduce the candle-power of a tungsten filament lamp by 17 per cent, and that running it 5 per cent over voltage will cut the life in two. The inference in either case is that the operating cost per candle hour will be very much higher than at normal voltage. Running a tungsten filament lamp 5 per cent below normal voltage actually decreases the candle-power 17.2 per cent, decreases the wattage 7.8 per cent, and practically doubles the life of the lamp. Five per cent over voltage increases the candle-power 19.7 per cent, increases the wattage 8.1 per cent, and cuts the life very nearly in two.

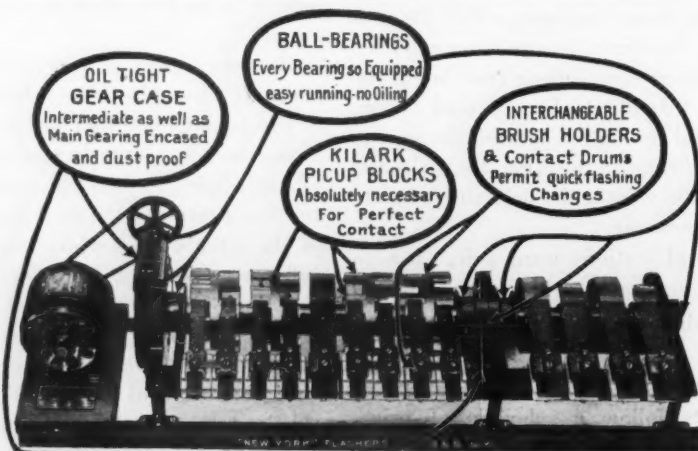
The only other factor which affects the performance of incandescent lamps in service is the collection of dust on lamps and reflectors. Where units are allowed to remain untouched for a period of three or four months, it has been repeatedly shown and further it is quite reasonable to expect, that the depreciation from this cause may total 20 or 30 per cent; therefore, it is contended by those interested in the sale of gas for illumination that, including this factor, the total depreciation in candle-power of an electric installation is fully equal to that of a gas burner. It is stated that under good service conditions a gas burner will be regularly inspected, cleaned, and adjusted by a representative of the gas company as often as once a week or once in ten days, and under these circumstances the loss due to dust may practically be neglected. The fact must not be overlooked, however, that cleaning an electric installation once in three months and gas units three times a month can scarcely be considered equally good maintenance. Good maintenance for a commercial electric installation consists in cleaning lamps and reflectors once a month or oftener, as is regularly practiced by the lamp departments of the Knoxville Railway & Light Company, the Rochester Railway & Light Company, and independently by most of the better class of stores. In Knoxville practically all incandescent units are cleaned once in three weeks, either by the consumer himself or by a representative of the lighting company. The cost of this service has been found to average 30 cents per lamp per year. In Rochester about 9,000 units are under monthly maintenance by the central station and the annual cost of cleaning per lamp year is even lower than at Knoxville. It is unquestionably true that under these circumstances the mean loss of light due to dust will not exceed 6 per cent. Including the inherent loss in efficiency of the lamps with age a figure of 10 per cent will be found to adequately represent the difference between initial and average conditions for these installations. All service tests thus far published on gas lamps under even the best maintenance, show a difference between initial and average performance of 30 per cent or more.

Table III.—Depreciation Due to Dust—Tungsten-Holophane Units

Building	Time Since Lamps were Cleaned Weeks	Total Loss Due to Dirt
Cafe	8	24.9
Drug store	4	9.0
Clothing store	8	18.5
Clothing store	18	10.4
Clothing store	15	25.6
School	3½	11.9
Grocery	3	8.0
Drafting	25	28.7

No. 2 FLASHERS VS. CENTRAL STATIONS

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are constructed so carefully and in such a perfect alignment, together with ball bearings on every bearing, that many of them turn over easier than the motors

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STYLE J

Table III is a summary of a series of tests on tungsten-Holophane units made by Mr. A. L. Eustice, of the Nernst Lamp Company, in 1909, to determine the comparative loss in efficiency due to dirt on Nernst and tungsten filament lamps. These tests have since been extensively quoted by interests competitive with incandescent electric lighting. It will be noted that while the total depreciation is in some cases considerable, the average rate of depreciation per week is surprisingly low.

The dust argument depends for its success upon the ignorance of the customer, for the gas solicitor who tells a customer that the loss on an electric unit due to this cause amounts to from 20 to 30 per cent fails to tell him also that three minutes' work per month will render this loss almost negligible. The operation of electric units owned by a customer who is so little interested in the trim appearance of his store that he has the glassware cleaned but once in three months, may well be compared with the performance of incandescent gas lamps which are cared for by the same customer—whenever he has time and feels they need it. Under these circumstances the depreciation on the electric installation will be high, but it is also very generally acknowledged that with such maintenance not more than one-half the initial candle-power of the gas lamps will be secured. Whenever the central station man observes that a customer is not receiving full benefit from his lighting equipment through failure to keep the units clean, he should call attention to the matter or, if he deems it advisable, send a man to renew the blackened lamps and wash the reflectors, and thus demonstrate the improvement which can be effected. This method has been used by a number of companies with gratifying success. Such occasional service costs but little and is worth much in gaining the appreciation and good will of the customer.

Electricity is the modern illuminant, the successor to, and therefore in a sense a competitor of gas and other sources. It should not be necessary, however, for the electric salesman to resort to an emphasis of cost in order to obtain new business. On the other hand, the foregoing data show how he may proceed to secure a comprehensive cost comparison, which should preferably be used only as an addition to the many other advantages which may also be justly claimed for electric light.

Doherty and Byllesby Well Represented

The representation of the Doherty properties was over fifty delegates, while Byllesby and Company sent some thirty men to Seattle. This is a great showing, in view of the facilities enjoyed by these syndicates for reporting and exchanging information. Ever since he was president of the Association, Mr. Doherty has been an enthusiastic supporter of the N. E. L. A. and Doherty men will be found in positions of importance in many committees. The attitude of the Byllesby organization has been hardly less favorable, especially in all movements looking toward commercial development through association work. Callahan, Hodge, Larney, and a dozen more have done great service for the Commercial Section.

The Big Men Can Afford It

Eight past presidents of the Association attended the Seattle Convention and gave on the average two weeks time to co-operative effort to develop the industry and strengthen themselves. These men cannot be worth, on an average, less than \$25,000

a year, so that their attendance cost them altogether pretty close to \$12,000, including expenses. The \$1,200-a-year man who "can't take time for conventions" ought to get a new viewpoint by studying these figures.

Commercial Section Recognition

Every returning delegate and every reporter at the Convention was loud in praise of the work and aggressiveness of the Commercial Section. It begins to look as though the Section's existence is justified, though there were many who predicted failure when George Williams organized this hustling crew, and not a few who spent not a little effort in belittling the idea of the commercial men ever amounting to anything as an independent body.

\$50,000 Worth of Printing

To give an idea of the vast educational work done by the National Electric Light Association, Secretary Martin reported that about one-half of the Association's \$100,000-a-year income is devoted to publications. This does not include the money spent this year upon the three Commercial Section books on Industrial Lighting, Street Lighting, and Residence Equipment. These latter publications were all paid for by contributions or by sales of the books at a slight profit.

Biggest Western Rejuvenation at Seattle

The record class for the coast was initiated into the Jovian order during the Seattle convention. Eighty-eight new members were added to the rolls.

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Detroit Fireless Electric Cookers range in price from \$18 to \$55, meet every want and the irreproachable quality makes continued sales.

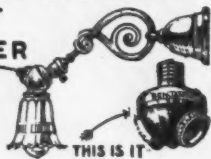
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It just screws in—and the work is done. You have one light, but want two. Or you want to run an extra wire to another point for connecting some electrical appliance—fan, heater, curling-iron, flatiron, chafing dish, etc., and still keep your light burning. You need not rewire the place to do it.

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Technical Ushers
T. Commerford Martin made more friends in Seattle in three days than most men make in a lifetime. One of the clever ideas that was noted was the fact that engineering students at the University of Washington were used as ushers. The boys saw a great convention; they saw the leaders of a great industry at work, and if they were not spurred with an ambition to get into central station work it was not Martin's fault.

Practical Work by the Accountants

There was nothing dusty about the Accounting Sessions. The men of figures showed rare good judgment in their choice of subjects and the papers came in for extended discussion by men outside the accounting departments. To most people, accountancy is nothing but bookkeeping, but the Section proved that there is a deal of cool-headed management in this sort of work. Commercial men will do well to spend a few evenings over these papers.

Unforgettable Miss Billings

There is never a gathering of real central station men without an affectionate word being dropped for Miss Harriet Billings, the Association's Assistant Secretary. At the Executive meeting in Seattle, the leading men of the industry quarrelled for the privilege of offering and seconding the resolution of good wishes which was sent to her at her home in Arlington, Vermont.

Commercial Section Wins Members En Route

Thirty-four members were secured for the Commercial Section on one of the trans-continental trains and only a few less on one of the Chicago trains. Secretary Dodd had made careful preparation to enlist every available man and the results show that his plans were effective. In another convention those who admit that they are not members will be "few and seldom."

San Francisco for 1915 Convention?

A determined effort will be made to draw the 1915 convention to San Francisco during the Panama Exposition. At the opening session of the convention, Mr. J. A. Britton, of the Pacific Gas & Electric Company, made an earnest plea that the Golden Gate city be considered and this was heartily backed up by representatives of other coast cities. Now that the Association has had so pleasant an experience in the far west, it does not seem so unreasonable, especially as the trip would draw many delegates who would feel that the exposition would help to repay them for the time and expense of the long journey.

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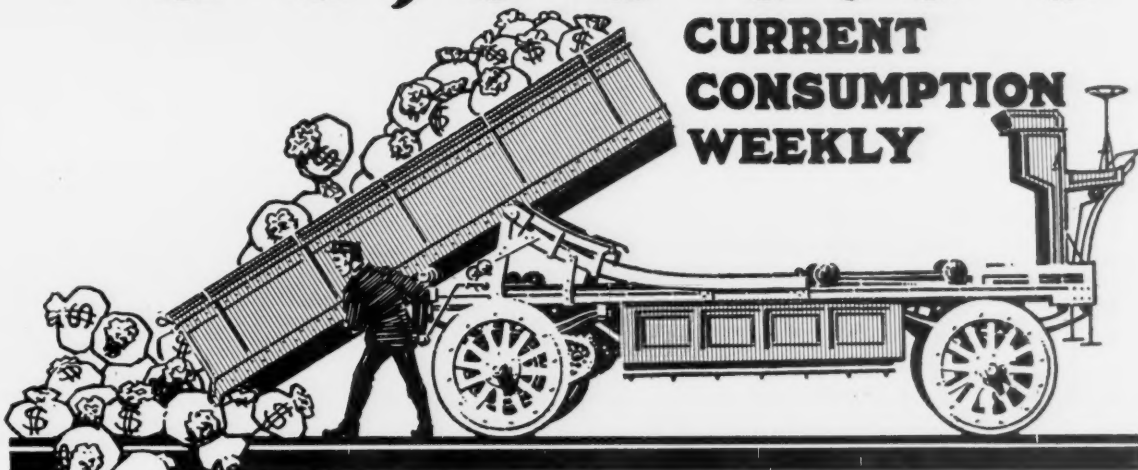
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This statement was made at the first annual meeting of the Electric Vehicle Association of America. It is as indisputably true today as it was then. Every Central Station in the country should increase its revenue through the sale of current for Electric Vehicles.

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Are you doing your share to popularize Electric Vehicles? We are conducting a nation-wide advertising campaign for the Electric, both pleasure and commercial, in a great number of national magazines and a long list of trade journals. We want every Central Station in the country to derive the greatest possible amount of individual benefit. Just get in touch with us today and we will tell you how you can ally yourself with this concentrated effort to push the sale of Electrics.



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BOSTON NEW YORK: 124 W. 42nd St. CHICAGO

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In one week recently in Galveston, I sold signs aggregating 34,700 lamps. I was working in co-operation with The Brush Electric Co.

I'll do as much for you, if you'll do what they did. This is an offer or a bet—either way you take it.

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I build the kind of Electric Signs that will keep this business sweet after we've landed it.

—T. E. Valentine.

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